

# Does violence against civilians depress voter turnout?

## Evidence from Bosnia and Herzegovina<sup>\*</sup>

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### Abstract

We investigate the effect of violence against civilians on voting. Using data from elections in Bosnia and Herzegovina between 1990 and 2014 and exploiting variation in war intensity across municipalities, we estimate a negative impact on voter turnout. The effect is stable and persistent over twenty years after the war resolution. Our results are robust to the inclusion of pre and post-war socioeconomic and political characteristics, to instrumental variable estimations based on terrain ruggedness, and to restricting the sample to voters who were too young to be selectively targeted. Distinguishing between civilian and military victims, we show that violence against civilians drives the negative effect. Next, we examine different mediating mechanisms including forced migration and demographic selection, ethnic composition, physical capital damage, post-conflict reconstruction, and labor market conditions. Our results support the hypothesis that violence affects voting through a “moral” dis-utility from showing allegiance to politics and the society by casting a vote. Using survey data, we show that respondents in more affected municipalities report lower generalized trust, trust in institutions, and voting.

**JEL Codes:** C31, C36, D72, D74, N44, P30, Z10

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# 1 Introduction

Formal institutions and informal norms such as civic capital and trust between market participants contribute crucially to economic development (Algan and Cahuc, 2010; Guiso, Sapienza and Zingales, 2011). The establishment of institutions and democratic participation in the aftermath of a civil war is vital for the reconstruction and development of war-torn economies and societies. Elections, in particular, can be decisive for the achievement of peaceful resolutions to political controversies and collective decision making (Korth, 2011). A growing literature shows that the experience of violence may undermine social capital, trust, preferences for market participation, and political preferences (Rohner, Thoenig and Zilibotti, 2013; Voors, Nillesen, Verwimp, Bulte, Lensink and Van Soest, 2012). Political participation and institutional representation ultimately determine the allocation of public and private resources (Miguel and Roland, 2011). It is therefore important to understand how voting behavior differs for individuals who were more affected by violence than others. In particular, does the intensity of violence against civilians in a civil conflict lead to differential political participation among victims?

This paper provides original evidence of a long-lasting negative relationship between violence against civilians and voter turnout. Further, we investigate potential underlying mechanisms including demographic selection, migration, ethnic polarization, reconstruction, labor market conditions, and political competition. Our results are consistent with a framework à la Riker and Ordeshook (1968) in which voters gain utility (a “warm-glow”) by asserting partisanship and demonstrating allegiance to the political system. In particular, our results suggest that victims that suffered higher conflict brutality in terms of civilian losses experience disutility from political participation. Using data from local and central democratic elections and war casualties in Bosnia and Herzegovina’s (BiH) municipalities, we estimate that a one standard deviation increase in civilian casualties, 1.24% of the pre-war population, reduces turnout by up to 4.2 percentage points. With an average turnout of 55-60% and casualties reaching up to 7%, the effect is large in magnitude and statistically significant at conventional levels for every election in our data.<sup>1</sup> We find that the impact persists over twenty years after the conflict resolution.<sup>2</sup>

The expected direction in which exposure to violence may affect voter turnout through a change in behavior and preferences is ambiguous. On one hand, the literature argues that war may foster cooperation by encouraging neighbors to organize common defense, attack, and coping strategies against external aggressors. According to this hypothesis, Bellows and Miguel (2009) find that conflict in Sierra Leone increased engagement in community meetings and self-reported political

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<sup>1</sup>By relying on a database of war casualties by municipality of origin and electoral administrative data, we base our estimates on objective measures of conflict exposure and voting. This allows us to overcome the concern of self-reporting bias (for example, DellaVigna et al. (2017) find that individuals who vote tend to tell the truth, while non-voters have a higher propensity to lie about their electoral behavior).

<sup>2</sup>This persistence is in line with the findings of Bauer et al. (2016) who – pooling different studies with different time horizons in a meta-analysis – show that the effect of war violence on social capital does not seem to dissipate over time (similarly, see Cassar et al. (2013) and Grosjean (2014)).

involvement. [Blattman \(2009\)](#) shows a higher political engagement among former abducted combatants in Uganda. He suggests that former soldiers experienced a post-traumatic psychological growth which increased their participation in civic life. [Voors et al. \(2012\)](#) estimate higher levels of in-group altruism among individuals in Burundi whose villages directly experienced high levels of violence. On the other hand, [Cassar et al. \(2013\)](#) argue that experiencing violence during the Tajik civil war, characterized by intra-group fighting, led to decreased levels of trust and preferences for market participation. War violence may thus erode social capital and participation to the political life if individuals were attacked by members of their own community. In a meta-analysis on conflict and cooperation, [Bauer et al. \(2016\)](#) conclude that individuals experiencing violence generally develop pro-social preferences toward members of the same community (“in-group”), while there is not much evidence in the literature on preferences towards “out-group” members.

Our study addresses the case of an ethnic civil conflict in which victims were attacked by members of their own social community and are then called to partake in the same political system as their aggressors, which emphasizes wartime ethnic divisions. We expect that inter-group aggression and the out-group dimension of civic participation would induce a negative relationship between violence and voter turnout. In particular, our study contributes to the existing literature in two ways: (i) we estimate that violence *against civilians* led to a persistent decrease in voting behavior and (ii) we show that this effect can be interpreted as a disruption of trust in institutions and inter-personal relations. The expression of a vote for parties that are strictly associated with war dividends brings agents a disutility that outweighs the benefits of voting, the higher the violence.

[Azam and Hoeffler \(2002\)](#) and [Kalyvas et al. \(2006\)](#) assert that perpetrators can intentionally use violence against civilians with the strategic purpose of undermining the sense of society and disrupting the social fabric. Our study introduces a crucial distinction between civilian and military war casualties, which helps investigating and supporting this hypothesis. Consistent with the hypothesis, we find that lower turnout and mistrust in institutions arose specifically from violence towards civilians.<sup>3</sup> In contrast, higher exposure in terms of military casualties had no statistically significant relationship with post-war turnout rates nor social capital measures.<sup>4</sup> The presence of pre-war turnout data allows us to investigate selective targeting of politically active communities. We show that politically active municipalities were more likely to experience high levels of violence during the war.

We address alternative mechanisms through which conflict may affect voting behavior, such as demographic selection, migration, ethnic composition, labor market conditions, physical capital damage, and post-conflict reconstruction.<sup>5</sup>

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<sup>3</sup>Our focus on the nature of victims and our findings of decreased voter turnout contributes to the literature by complementing and contrasting the existing studies that address the effect of a generally defined *war intensity* on political participation. The closest analysis of conflict and turnout in parliamentary elections in Uganda by [De Luca and Verpoorten \(2015\)](#) relies on overall conflict events and finds no significant effect.

<sup>4</sup>Similarly, [Rohner et al. \(2013\)](#) find that the negative impact of violence exposure in Uganda on generalized and inter-ethnic trust is larger when they consider violence committed against civilians.

<sup>5</sup>The literature shows that war and conflict can have extensive consequences on societies and economies ([Acemoglu,](#)

Our analysis provides evidence in favor of the hypothesis that violence against civilians had a negative effect on turnout through the “warm glow” of voting. To shed more light on this channel, we use a nationally representative individual-level survey on social and political preferences (EBRD, 2006). The survey allows us to control for recalled trust and political engagement before the war. We find that respondents in municipalities exposed to intensive violence towards civilians report a lower propensity to vote, to trust other people, and to trust political and economic institutions such as the presidency, the cabinet of ministers, the parliament, political parties, the court, military forces, the police, and the financial system. The results suggest that the mechanism linking exposure to violence towards civilians and voting lies in the depletion of social preferences, trust in institutions, and interpersonal ties.

A challenge to the estimation of the causal effect of war violence arises from the fact that municipalities with a higher share of casualties may have been specifically targeted because of their geographical, economic, social, or political importance or weakness. Communities with higher civic capital may be more efficient in organizing defense and attack. A cross-sectional correlation of voter turnout and the intensity of violence against civilians may reflect other municipality characteristics such as, for example, lower baseline social capital: this would lead to an overestimation of the effect of violence on turnout. Additionally, the consequences of war extend to a broad range of economic, demographic, social, and political outcomes that may correlate with political preferences and behavior, and may cause omitted variable bias. To tackle the concern of endogeneity, we adopt several empirical strategies. One advantage of the Bosnian context is that the country had its first free and democratic elections before the outbreak of the war. This allows us to follow a difference-in-differences strategy. We take the first difference between post-war and pre-war turnout rates and regress it on the intensity of violence towards civilians from the same municipality of origin. Another advantage is that the same parties that emerged shortly before the war still define the political scene nowadays. This increases the comparability between pre and post-conflict political participation. The absence of multiple democratic elections before the war, however, impedes a test for pre-conflict parallel trends. For this reason, the results need to be interpreted with caution. Next, we additionally assess the validity of our findings through alternative empirical specifications. We show that our estimates are robust to the inclusion of pre and post-war geographical, demographic, and economic municipality characteristics that the literature identifies as important determinants of conflict risk (Kalyvas and Sambanis, 2005; Novta, 2016; Weidmann, 2011). Similar to Bellows and Miguel (2009), we investigate heterogeneous effects for voters who were too young to be directly targeted in the war, compared to older cohorts. We do not find any statistically significant difference, which speaks against the hypothesis of selective victimization of politically (in)active individuals. Finally, we instrument variation in conflict intensity with measures of terrain ruggedness. The literature suggests that mountainous environments are conducive to conflict risk

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Hassan and Robinson, 2011), including the depletion of human capital (Akresh and de Walque, 2008; Leon, 2012), demographic shifts and ethnic homogenization (Swee, 2015), and changes in social, risk, and time preferences (Bellows and Miguel, 2009; Blattman, 2009; Miguel and Roland, 2011; Voors et al., 2012).

because they facilitate sheltering and attack in the adjacent valleys (Kalyvas and Sambanis, 2005). All our estimation specifications confirm that the intensity of violence towards civilians decreases voter turnout.

A study very related to ours is the work by Hadzic et al. (2017). They investigate the impact of violence on post-war ethnic vote shares in BiH, applying a similar empirical approach. The focus of the two studies is on different outcomes. While Hadzic et al. (2017) investigate the impact of conflict on ethnic voting (and inter-ethnic trust), our paper analyses the impact on electoral turnout. Hadzic et al. (2017) find that exposure to violence increases post-war vote shares for ethnic parties. Using individual-level survey data, they also find that individuals are less likely to trust other ethnicities in high-violence communities and are more likely to retreat into their ethnic community. We find that violence exposure decreases turnout, and our individual-level survey analysis shows lower levels of trust in public institutions and lower propensities to vote. We believe that the findings of the two studies are supplementary and mutually reinforcing. One interpretation of these joint results is that moderate voters may have become discouraged to participate politically after the war, and thus decreased voter turnout while leaving a higher relative participation among ethnic voters.<sup>6</sup> This could explain the co-existence of lower turnout rates and higher vote shares for ethnic parties.<sup>7</sup>

## 2 Background and institutional setting: The Bosnian War and transition to democratic voting

The Bosnian War originated with the breakup of the Socialist Federal Republic of Yugoslavia (SFRY). Former Member of the SFRY, BiH declared its sovereignty in October 1991, after Slovenia and Croatia. At that time, BiH had a total population of 4.3 million and included several ethnic groups such as Muslim Bosniaks (44 percent), Orthodox Serbs (31 percent), Catholic Croats (17 percent), and other minorities.

On February 29th of 1992, a referendum was initiated and the citizens were asked to express their opinion regarding independence from the SFRY. Political representatives of the Bosnian Serbs boycotted the referendum and responded with the mobilization of armed forces. A majority of Croats and Bosnian Muslims voted for independence and obtained recognition by the international community. The leaders of the Bosnian Serbs wanted to keep the annexation with Yugoslavia, to unify Serbian-majority territories, and to form an ethnically homogeneous “Greater Serbia”. Municipalities with a Serbian majority had already declared mistrust toward Muslim leaders of

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<sup>6</sup>Note that we do not find any statistically significant effect on voter registration in connection with violence intensity (see Section 6.2)

<sup>7</sup>A lack of individual-level survey panel data on voting and political ethnic preferences in BiH before and after the conflict does not allow us to investigate this hypothesis empirically. In a non-reported robustness check, we replicate the results by Hadzic et al. (2017) using our empirical specification. We find higher post-war ethnic vote shares and lower turnout rates. Results are available upon request.

Bosnia and had started forming armed municipal Crisis Staffs late in 1991. The Yugoslav Army, under the guidance of Milosevic, transferred Serbian soldiers to local units in Bosnia. Initial tensions quickly escalated into an armed conflict and into a brutal ethnic civil war that lasted four years. The war was fought along ethnic and territorial control lines. The ethnic nature of the Bosnian civil conflict determined clear out-group divisions. During the war, there were also instances of fighting among ethnic affiliates ([Christia, 2008](#)), and several victims knew their aggressors in person ([Kalyvas and Sambanis, 2005](#)).

The conflict ended in 1995 with the negotiation of the Dayton Peace Agreement between representatives of all Bosnian parties and the neighboring Federal Republic of Yugoslavia and Republic of Croatia. As established in the Agreement by all parties, Bosnia and Herzegovina (BiH) was then proclaimed a federal democratic republic composed by two main entities, the Federation of Bosnia and Herzegovina (FBiH) and the Republika Srpska (RS), and, since March 2000, the Brcko District.<sup>8</sup> An Inter-Entity Boundary Line separated the three units. The Agreement mandated that internal administrative units will be equally governed by all groups (Bosniaks, Croats, and Serbs). FBiH was further divided into ten cantons and 79 municipalities, and RS into 63 municipalities.

The political landscape is characterized by a three-members rotating presidency, elected by popular vote within the three major ethnic groups (Bosniak, Croat, and Serb). The national government has responsibilities limited to security and defense, borders and immigration, fiscal and monetary policy, and inter-entity coordination and regulation. The confederate sub-entities have a large degree of autonomy. They are responsible for public goods provision, social services, education, housing, and health care. Municipal councils are in charge of local public goods management and services delivery.

Elections take place every two years, alternating between general and local elections. During local elections, the citizens of BiH vote for their municipal (or city) councils and municipal mayors. During general elections, the citizens participate in six distinct contests. At the state level, citizens vote for the BiH House of Representatives and the BiH Presidency. At the entity level, citizens elect the House of Representatives of the FBiH, the National Assembly of the RS, president and vice-president of the RS. At the same time, elections take place for the ten Cantonal Assemblies in FBiH. The total number of votes cast for the different contests are nearly identical as the elections take place on the same day.

The first elections after the war (1996-97) were supervised and monitored by the Organization for Security and Co-operation in Europe (OSCE). Despite OSCE's auditing activity, those were characterized by irregularities, frauds, and harassment, both during the registration and in the voting process ([Pugh and Cobble, 2001](#)). The 2002 elections can be considered as the transition to an autonomous self-administration: international authorities still had a prominent role, but the Bosnian institutions officially took responsibility ([OSCE, 2002](#)). Due to the lack of data on previous elections, our empirical analysis starts with 2004. In 2004, the government had full responsibility

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<sup>8</sup>Brcko is a self-governing neutral administrative entity under the sovereignty of BiH, internationally supervised.

over the elections, for the first time, without the supervision of the OSCE. Additional estimations for the year 1997 can be found in the Appendix.

A crucial analytical advantage of the Bosnian context is the stability of the political landscape. The main political parties and subjects that ran in the pre-conflict elections of 1990 still participated in all post-war elections. This feature increases the degree of comparability between pre and post-war electoral scenarios. Table 18 in the Appendix displays the names and evolution of political parties over time.

### 3 Theoretical framework: civil conflict violence and the expressive benefit of voting

How can exposure to conflict violence influence voting behavior? Following [Riker and Ordeshook \(1968\)](#), we assume that the decision to vote is determined by the benefits from the preferred candidate winning the election, the probability of being the pivotal voter, the private costs of voting, and the expressive benefit from voting (sense of civic duty, utility from the act of voting). In a standard model of voting motivation with a “warm glow” component, the decision to vote can be formalized as follows:

$$pB + S - C \geq 0 \tag{1}$$

where  $p$  is the probability of being pivotal ([Downs, 1957](#)), multiplied by the utility that the agent obtains if the preferred candidate succeeds (i.e. the difference in benefit obtained by the victory of the candidate over the opponents).  $C$  represents the transaction costs of voting, such as reaching the polling station, self-information, and others (these costs may be negative if the agent obtains utility from such activities). Costs of voting that depend on election outcomes are neglected, following [Riker and Ordeshook \(1968\)](#). Importantly, the utility of voting includes a benefit  $S$  that does not depend on the agent’s contribution to the election’s outcome.  $S$  corresponds to the pro-social benefit that is intrinsically derived from the act of voting. It includes the utility (or disutility) from affirming adherence and compliance to the political system.

Our empirical analysis reveals a negative relationship between voting and the intensity of violence against civilians in the Bosnian War. To rationalize the underlying mechanism, we address how each component of Equation (1) may be affected by conflict. Step by step, we rule out that conflict systematically correlates with the probability of being pivotal  $p$ , with the utility from election outcomes  $B$ , and with transaction costs  $C$ . We ultimately claim that the intensity of violence against civilians affected the pro-social motivation of voting, leading to persistent lower turnout rates.

The probability of being pivotal  $p$  depends on the size of the potential electorate. This is a function of the municipality’s demographic structure in terms of population size, age composition, and the number of officially registered voters. Violence exposure could decrease the probability of being a pivotal voter due to a variety of reasons. First, it can influence the voting-age population as a result of migration and deaths. The size of the voting-age population in the respective municipality



directly affects the probability of every single voter being pivotal (Coate, Conlin and Moro, 2008). Using pre- and post-war census data, we show in Section 6.2 that differential outmigration or population changes cannot explain differences in turnout rates. We also exclude a significant association between conflict intensity and voter registration.

The Bosnian War had a strong ethnic component. It brought about ethnic divisions, which are nowadays still reflected in the political sphere. Most parties and political agendas are defined along ethnic lines. Ethnic division matters for the private benefits of voting (utility  $B$ ) because it can induce higher competition for resources and public goods provision (Alesina, Baqir and Easterly, 1999; Swee, 2015).  $B$  could be differential in places where conflict was harsher, for at least two reasons. First, the war induced ethnic homogeneity. Most affected municipalities may face weaker competition for securing resource appropriation by the respective ethnic group and thus face less stringent voting incentives. The differential utility obtained from the victory of the preferred (co-ethnic, or “in-group”) candidate over the opponent (“out-group”) may be smaller than in municipalities that are less homogeneous. Second, reconstruction activity and economic opportunities may be differently distributed across municipalities depending on the degree of destruction caused by the conflict, which correlates with violence against civilians. More resources may create stronger incentives to vote for obtaining a favorable (pro co-ethnic) electoral outcome.

The context of Bosnia and Herzegovina offers two strategies to address this point. The 2013 census allows us to investigate a change in ethnic homogeneity. Municipalities with higher levels of civilian casualties became more ethnically homogeneous after the war compared to municipalities with lower levels of conflict. Including a measure of a change in ethnic homogeneity to our regressions does not alter our conclusions regarding the relationship between civilian casualties and turnout rates. A second strategy that we follow is to include post-war reconstruction data (UN reconstruction housing program) and labor market indicators in our regressions, accounting for a different concentration of resources. Again, we observe an unchanged negative impact. Including data on physical capital damage and reconstruction efforts allows us to address potentially different transaction costs  $C$  in voting. The costs of reaching polling stations can be considered negligible given the large presence of stations in the country.

Lastly, party competition could be lower in high-violence-intensity regions and explain lower turnout rates. With less competition within ethnic groups and the secured presence of at least one co-ethnic representative, voting incentives through private benefits from electoral outcomes may be lower. Using electoral data, we show that party competition is not differential across more affected municipalities.

The reasoning developed so far suggests that conflict affects voting beyond the factors  $p$ ,  $B$  and  $C$  in Equation (1). This leaves us with the last part of the voting equation: the “warm glow” of voting ( $S$ ). More specifically, we refer to the utility that the voter derives from affirming participation in the political system and social life through a vote. Indeed, Bosnia and Herzegovina’s political supply explicitly evokes a profound ethnic division. Importantly, the political landscape in BiH before and after the conflict has remained fairly unchanged. The parties that emerged shortly before the war



still define the political scene nowadays. Elections increase the salience of wartime ethnic violence and recall the failure of democratic institutions in preventing the brutal conflict that followed the first democratic elections. Experiencing conflict can, therefore, impact the voting decision through the “warm glow” motivation of voting. In particular, conflict brutality towards civilians eroded inter-personal relations and trust in institutions. Called to participate with a vote for parties that are strictly associated with the war may thus induce high disutility, which outweighs the benefits of voting. In Section 6.3, we test this hypothesis with individual survey data. Consistent with the outlined hypothesis, our results reveal disruptions of social capital, trust in economic and political institutions, and generalized trust in municipalities with higher civilian losses.

## 4 Data and descriptive statistics

To investigate whether and how violence against civilians influences voting, we combine several sources of data, following the general criterion of favoring objective measures over self-reported information.

To obtain objective measures of war intensity by municipality, we use the “Bosnian Book of the Dead” (BBD), a registry compiled by the Research and Documentation Center in Sarajevo (2008). The Book reports the number of war casualties (killed and missing individuals) by municipality, distinguishing between military members and civilians. [Ball, Tabeau and Verwimp \(2007\)](#) provide an assessment of the database. We use civilian casualties by municipality of origin as this measures violence towards members of own communities who did not take an active part in the armed fighting. For the International Criminal Tribunal of former Yugoslavia (ICTY), victims are considered civilians unless it could be proven that the killed person was militarily involved in the action. For each municipality ( $m$ ), and for the subgroups  $s = 1$  (Total), 2 (Civilian), (3) (Military), we compute the share of casualties as:

$$\text{Casualties}_{m,s} = \frac{\text{Total Casualties}_{m,s}}{\text{Pre-war Population}_m (1991)} \quad (2)$$

Figure 1 shows the geographic variation in civilian victims as a share of pre-war population by municipality of origin. Figure 2 displays the kernel density of war casualties in the municipality of origin, distinguishing between military and civilian fatalities. Table 1 reports the summary statistics for war casualties, the number, and share of damaged houses (a measure of physical capital destruction), and war-related internal displacement in 1995, by municipality. Our final estimation sample excludes municipalities with missing information and excludes Mostar for its outlying post-war administrative partition pattern, the independent district of Brcko for its non-comparable administrative and political regime, and Srebrenica for its outlying number of civilian victims. Another reason to exclude Mostar from the sample is that no local elections have taken place since 2008. The total number of victims is 97,207. Civilian casualties reach a maximum of 6.57% of the pre-war population, with a mean of 0.83% and a standard deviation of 1.24%. Military

casualties were higher in absolute numbers but with less dispersion. The correlation between the number of civilian and military casualties is high and approximately 0.64. The average number of houses damaged is 8 in 1000 inhabitants, of which an average of 49% got reconstructed by 2005.<sup>9</sup>

The source of data for voter turnout at the municipality level are the official electoral statistics from the Federal Office of Statistics of BiH (FOS-BiH) and the Central Election Commission of BiH for the local elections that took place in 1990, 2004, 2008, and 2012, and general elections of 2006, 2010, and 2014 in 143 municipalities.<sup>10</sup> We compute voter turnout as the share of people that voted over all registered voters by municipality.

Additionally, we rely on the Bosnia and Herzegovina’s 1991 census, conducted just before the war. The census provides pre-conflict information such as ethnic composition and economic indicators at the municipality level. To control for post-war ethnic homogenization, we use the 2013 census, released in June 2016 ([Statistical Agency of Bosnia and Herzegovina, 2016](#)). Following [Montalvo and Reynal-Querol \(2005\)](#), we compute the ethnic polarization index according to the following formula:

$$P = 4 \sum_{i=1}^N \pi_i^2 (1 - \pi_i). \quad (3)$$

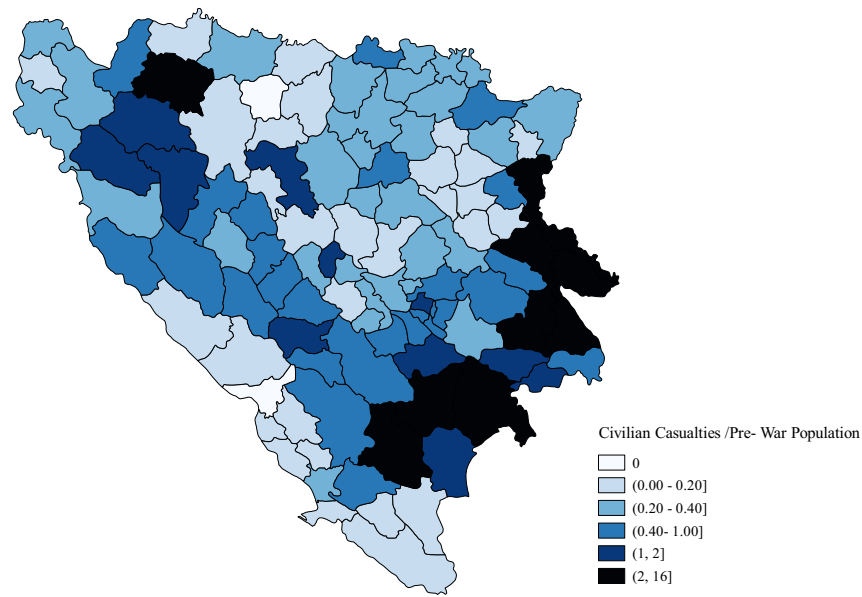
The index illustrates the distance between the distribution of the ethnic groups from a situation of highest polarization, characterized by the bipolar distribution. We calculate the index for both years using the four categories: Bosniak, Serb, Croat, and Others.

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<sup>9</sup>The maximum number of repaired houses exceeds 100% in some instances as more houses were built by the UNHCR than houses were reported to have been destroyed by 1995.

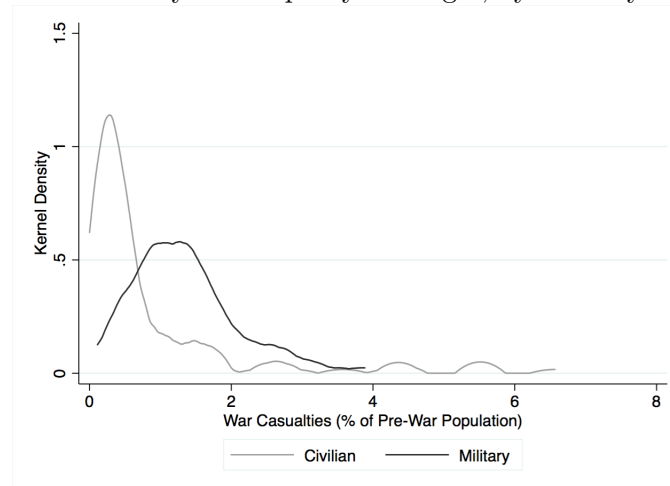
<sup>10</sup>We thank Borisa Mraovic for providing access to 1990 turnout data from [Mraović \(2014\)](#).

Figure 1: Civilian Casualties by Municipality of Origin



Source: Authors' estimation from the "Bosnian Book of Dead". Percentages refer to the war-related number of dead or missing civilians computed as a fraction of pre-war populations by municipality, based on the 1991 BiH Census. Full sample of municipalities.

Figure 2: War Casualties by Municipality of Origin, by Military or Civilian Status



Source: Authors' estimation from the "Bosnian Book of Dead". The graph reports kernel densities of war-related number of dead or missing civilians and militaries by municipality of origin, computed as a fraction of pre-war populations by municipality (based on the 1991 BiH Census), for the main estimation's sample of municipalities. Srebrenica and Mostar are excluded.

Table 1: Descriptive Statistics: War Intensity, Reconstruction, and Internal Displacement

Variable	Observations	Mean	Std Dev	Min	Max
Civilian Casualties (Total)	127	320.72	572.60	0	4026
Military Casualties (Total)	127	517.52	436.83	5	2056
Civilian Casualties (% of Pre-war Population)	127	0.83	1.24	0.00	6.57
Military Casualties (% of Pre-war Population)	127	1.33	0.75	0.11	3.88
Houses Damaged / Pre-war Population ('000)	127	8.08	7.16	0.00	31.70
Houses Repaired / Damaged (by 2005)	127	0.49	0.42	0.00	2.66
Internally Displaced (1995)	127	1172.34	1410.29	1	7604
Internally Displaced (1995, % of Pre-war Pop.)	127	0.04	0.04	0.00	0.21

Source: Authors' estimation from the "Bosnian Book of Dead", 1991 BiH Census, and the Federal Office of Statistics of Bosnia and Herzegovina. War casualties refer to victims' municipality of origin.

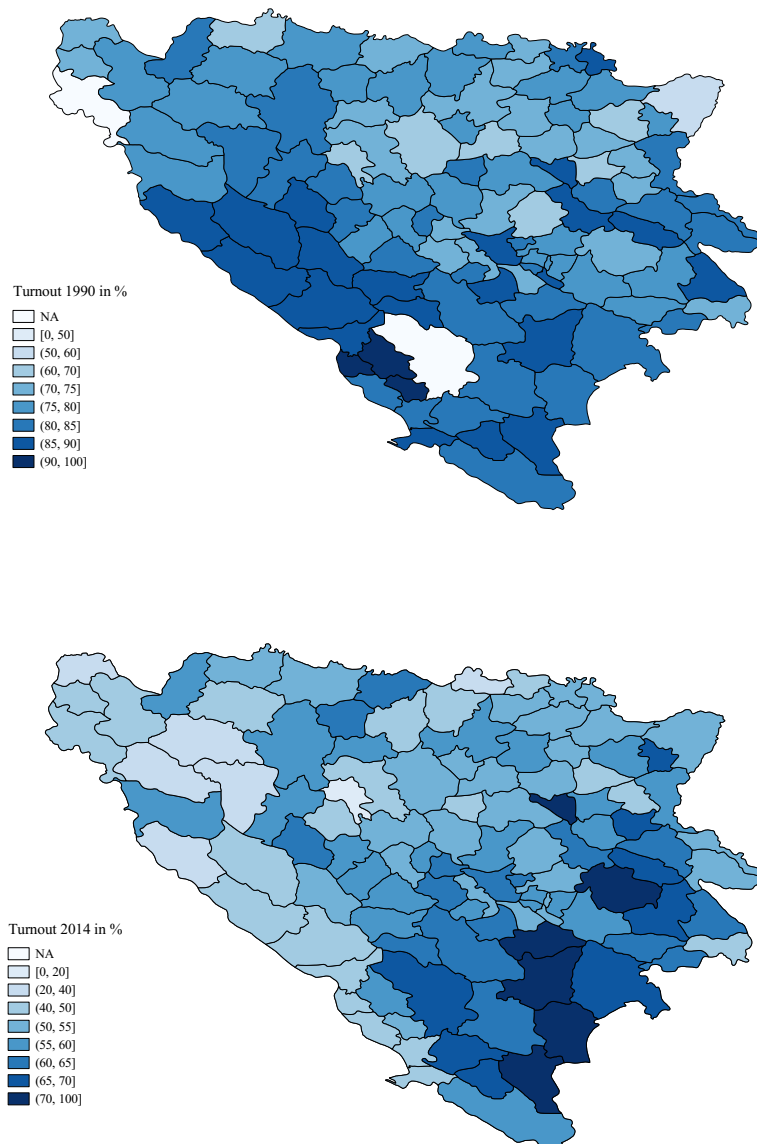
We collected additional post-war economic and socio-demographic indicators from the database compiled by the Center for Social Research Analitika, supported by the Open Society Institute and Swiss Agency for Development and Cooperation in Bosnia and Herzegovina.<sup>11</sup> Specifically, we use the estimated number of inhabitants per municipality (2007-2012) and the ethnic composition from the census of 2013 ([Statistical Agency of Bosnia and Herzegovina, 2016](#)), internal immigration net rates (2007-2012), average net wages, and the share of unemployed within the total active labor force (2005-2012). In all our main regressions we exclude the municipalities of Mostar and Srebrenica, due to their respective outlying pattern of post-war partitioning and the number of casualties. The inclusion of Mostar in the estimations does not alter the results and the inclusion of Srebrenica decreases the effect size by approximately 40%.<sup>12</sup>

Table 2 displays summary statistics and turnout levels for the 127 municipalities of our sample. Bosnia had the first free and democratic elections in 1990, the only ones that preceded the conflict. Turnout levels by municipality averaged around 80% in 1990. We construct our outcome variables as the difference between turnout for each post-conflict election and turnout in 1990 ("Δ Turnout" in Table 2). Municipal districts changed after the resolution of the war. Before the war, there were 109 municipalities, while nowadays the count is 143 (counting Mostar as one municipality). New municipalities have been carved out of pre-war municipalities, and our unit of analysis is post-war

<sup>11</sup><http://www.mojemjesto.ba/en/content/about-my-place-project>

<sup>12</sup>Results are available upon request.

Figure 3: Voter Turnout in 1990 and in 2014 by Municipality



Source: [Mraović \(2014\)](#) and Central Election Commission of Bosnia and Herzegovina

municipalities. In our empirical analysis, we account for whether the considered municipality has been split after the war into new ones.

Another feature of the conflict is that ethnic polarization decreased between 1990 (0.77 index value) and 2013 (0.43 index value). Municipalities became more ethnically homogeneous after the war. [Swee \(2015\)](#) finds that municipalities partitioned by the Inter-Entity Boundary Line provide a higher supply of schools and teachers (per-capita). He suggests that more ethnically homogeneous municipalities provide more public goods due to more convergent preferences. We, therefore, account for demographic and ethnic changes in our estimations and explore the role of ethnic homogenization as a potential determinant of post-war turnout.

Geographic characteristics, such as mountainous terrain and surface area, are taken from [Costalli and Moro \(2012\)](#) and [Jarvis et al. \(2008\)](#). We take the measure of terrain ruggedness from the Digital Elevation Data Version 4 ([Jarvis et al., 2008](#)). For every municipality, we calculate the mean and standard deviation of the ruggedness index within each municipality. The ruggedness index value is given by the change in elevation within the 3x3 pixel grid.

Lastly, we complement the analysis with individual-level information on social capital and political participation from the EBRD Life in Transition Survey I ([EBRD, 2006](#)). The survey was conducted between August and October 2006 and covered 1000 respondents in 32 municipalities, in a nationally representative design. The survey includes information on individual socio-demographic characteristics and questions on social capital preferences and behavior. Despite the limitations given by its cross-section dimension, the survey has two advantages: (i) it provides the geocoded location of the respondents' primary sampling units, and (ii) it allows to control for pre-war (self-reported) levels of generalized trust and to rule out targeting of individuals with specific social preferences. The survey asks individuals to report their current generalized trust and to recall generalized trust in 1989.<sup>13</sup> We use the number of civilian casualties at the municipality level as a community-wide measure of violence. Table 3 provides summary statistics for our final estimation sample of 697 individuals from the LIT-I survey ([EBRD, 2006](#)), estimated using survey weights, accounting for the clustered design of the sampling. The number of observations drops due to data availability. We only include individuals for whom we have information on all variables, to achieve sample homogeneity across specifications. Our results are not sensitive to including these observations. Our outcomes include (i) voting in elections in 2016, (ii) generalized trust (1-5 scale), and (iii) an index of trust in institutions, computed as the average scale (1-5) between: trust in the president, the parliament, political parties, and the ministers. We normalize each index such that their distributions have a mean of 0 and a standard deviation of 1. When estimating trust, we difference the index with respect to its pre-war measure. 43% of our estimation sample reports a decrease in trust (against 54% unvaried and 3% increasing).

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<sup>13</sup>“Generally speaking, would you say that most people can be trusted, or that you cant be too careful in dealing with people? Please answer on a scale from 1 to 5, where 1 means that you have complete distrust in people, and 5 means that most people can be trusted. What would it be today? And before 1989?” See the LIT-I questionnaire from [EBRD \(2006\)](#).

Table 2: Descriptive Statistics: Municipality Characteristics and Voter Turnout

Variable	Observations	Mean	Std Dev	Min	Max
<b>Pre-war Characteristics</b>					
Log (Per-capita Income) in 1991	127	8.49	0.19	8.15	8.95
Ethnic Polarization	127	0.77	0.21	0.04	0.98
Population ('000) in 1991	127	40.24	30.93	4.17	195.69
Strategic Importance Municipality	127	0.03	0.02	0.00	0.06
Students/Teacher in 1991	127	24.13	22.30	12.52	265.29
Distance to Croatia in km	127	52.73	35.26	4.92	137.52
Distance to Serbia in km	127	86.59	63.45	4.74	243.52
Surface Area	127	363.86	266.37	9.06	1224.74
% of Cultivated Land	127	0.18	0.16	0.00	0.67
Ruggedness St. Dev. (3x3 pixel) ('000)	127	0.10	0.04	0.00	0.24
<i>Ethnic Shares in 1991 (omitted: Yugoslavian and Other Ethnicity)</i>					
Muslim	127	0.41	0.24	0.00	0.97
Serb	127	0.36	0.26	0.00	0.97
Croatian	127	0.18	0.25	0.00	0.99
<b>Voter Turnout (Voters/Registered)</b>					
Turnout in 1990	127	79.65	6.42	60.00	96.00
Turnout 2004 Local Elections	127	48.37	10.19	22.85	84.30
Turnout 2008 Local Elections	127	60.56	8.97	39.97	92.27
Turnout 2012 Local Elections	127	61.39	9.81	36.21	91.59
Turnout 2006 General Elections	127	57.27	7.52	36.52	75.48
Turnout 2010 General Elections	127	58.44	8.16	33.75	82.68
Turnout 2014 General Elections	127	56.02	9.38	32.77	80.40
$\Delta$ Local Turnout 2004 (2004-1990)	127	-31.28	12.72	-61.33	1.30
$\Delta$ Local Turnout 2008	127	-19.09	10.45	-47.03	7.27
$\Delta$ Local Turnout 2012	127	-18.26	11.38	-44.22	8.70
$\Delta$ General Turnout 2006	127	-22.37	9.25	-53.89	-1.52
$\Delta$ General Turnout 2010	127	-21.21	9.51	-49.22	-1.32
$\Delta$ General Turnout 2014	127	-23.63	10.61	-52.61	2.40
<b>Post-war Characteristics</b>					
Municipality partitioned	127	0.42	0.50	0	1
Republika Srpska (D=1)	127	0.42	0.50	0	1
Ethnic Polarization in 2013	127	0.43	0.30	0.01	0.99
Unemployment Rate 2006	127	48.55	14.22	18.02	80.56
Unemployment Rate 2008	127	45.93	14.05	14.46	86.49
Unemployment Rate 2010	127	48.82	14.62	5.32	97.78
Unemployment Rate 2012	127	50.67	13.67	16.58	86.18
Average Net Wage 2006	127	506.31	93.08	278.00	851.00
Average Net Wage 2008	127	680.72	109.51	476.00	1069.00
Average Net Wage 2010	127	726.99	111.22	531.93	1135.81
Average Net Wage 2012	127	749.91	120.67	524.00	1195.00
Population ('000) in 2008	127	27.11	30.35	0.26	223.64
Population ('000) in 2010	127	27.16	30.64	0.41	226.46
Population ('000) in 2012	127	27.12	30.79	0.53	228.64
Net Immigration (% of Pop.) 2010	127	0.00	0.02	-0.02	0.19
Net Immigration (% of Pop.) 2012	127	0.00	0.03	-0.01	0.27

Source: Authors' estimations from the 1991 Bosnia and Herzegovina's Census, Official Electoral Statistics, and FOS-BiH.



Table 3: Summary Statistics, LITS-I (2006)

Variable	N	Mean	Std Dev	Min	Max
<b>Demographic Characteristics</b>					
Age	697	49.39	16.63	18	87
Female	697	0.57	0.49	0	1
Married	697	0.23	0.42	0	1
Divorced	697	0.04	0.20	0	1
Employed	697	0.38	0.49	0	1
Inactive	697	0.51	0.50	0	1
No Education	697	0.17	0.37	0	1
Primary Education	697	0.18	0.38	0	1
Secondary Education	697	0.55	0.50	0	1
Tertiary Education	697	0.11	0.31	0	1
Income Rank [1-10]	697	4.35	1.97	1	10
Income Rank in 1989 [1-10]	697	6.64	2.10	1	10
Subj. Health Assessment (1: Bad, 0: Not Bad)	697	0.26	0.44	0	1
Household number of Children	697	0.37	0.71	0	4
Urban Settlement	697	0.45	0.50	0	1
Minority	697	0.09	0.29	0	1
Bosnian	697	0.50	0.50	0	1
Croat	697	0.10	0.30	0	1
Serb	697	0.33	0.47	0	1
Other Ethnicity	697	0.06	0.25	0	1
<b>War Exposure &amp; Displacement</b>					
Ever Fought as a Soldier	697	0.11	0.31	0	1
Internal Migrant Before 1996	697	0.11	0.32	0	1
Civilian Casualties	697	0.46	0.66	0.06	4.41
Civilian Casualties ( <i>Municipality Measure</i> )	32	0.45	0.75	0.06	4.41
<b>Voting &amp; Social Capital</b>					
Voted in Previous Elections (2006)	697	0.65	0.48	0	1
Party Member	697	0.14	0.35	0	1
Party Member in 1989	697	0.09	0.28	0	1
Generalized Trust (1: complete distrust, 5: complete trust)	697	0.19	0.39	0	1
Generalized Trust in 1989	697	0.58	0.49	0	1
Change in Trust (pre to post-war): Yes to No	697	0.43	0.49	0	1
Change in Trust: No change	697	0.54	0.50	0	1
Change in Trust: No to Yes	697	0.03	0.18	0	1
Trust in Institutions	697	2.16	1.13	1	5

Source: Authors' estimations from the EBRD Life in Transition Survey I, 2006 (LITS-I). The data report information at the individual level in a nationally representative survey that covers 32 municipalities.

## 5 Empirical strategy

We start by estimating the impact of war on voter turnout at the municipality level.<sup>14</sup> The potential endogeneity of the conflict with respect to political and social engagement of voters constitutes the main empirical challenge. For ordinary least squares estimates to be unbiased, one must assume exogeneity of conflict intensity with respect to all observed and unobservable determinants of political participation. However, it is plausible that the occurrence and intensity of war correlate both with economic, political, and social characteristics of a municipality and with the ability of its inhabitants to respond, attack, and mobilize resources in the civil conflict. Additionally, war can directly influence socio-economic conditions, such as unemployment rates and human capital accumulation. These variables are therefore potential omitted determinants that could correlate with our outcome of interest.

To overcome endogeneity concerns, our main strategy relies on geographical variation in the intensity of war-related fatalities and missing people by municipality of origin. To estimate the relationship between civil conflict and political participation at the municipality level, we follow a difference in difference (DiD) approach, similar to (Rohner et al., 2013). By taking the first differences with respect to pre-war measures, we factor in every potential unobservable or non-measurable time-invariant characteristic that correlates both with voting and with conflict intensity, and would thus confound the estimates.

We believe that pre-war elections of 1990 constitute an appropriate baseline for the analysis because the political landscape remained unchanged after the conflict: the same parties run for elections, and their core policies are still defined along the line of ethnic favoritism. For each post-conflict election (generic  $t$ ), we estimate a reduced form linear probability model with the following econometric specification (Card and Krueger, 1994), obtained by differencing each post-war election year with respect to pre-war elections of 1990:

$$\Delta Y_{m,t} = \beta_1 + \beta_2 \text{ War Casualties}_m + \delta B_{m,0} + \gamma C_{m,t} + \epsilon_{m,t}, \quad (4)$$

where  $\Delta Y_{m,t} = Y_{m,t} - Y_{m,0}$  is the difference between turnout for municipality  $m$  in year  $t$ , with  $t \in \{2004, '06, '08, '10, '12, '14\}$ , and in 1990 ( $t = 0$ ). War Casualties <sub>$m$</sub>  represents the intensity of war in municipality  $m$ , measured by the number of fatalities and missing individuals. In the main specification, we consider the entirety of casualties occurred during the conflict (1992-1995) by municipality, and we then distinguish between civilian and military casualties. We express war casualties as the share of the pre-war population by municipality of origin of the victims and we match it with the municipality of residence of the registered voters.

$\beta_2$  is the coefficient of interest, capturing the impact of conflict intensity on voter turnout.  $C_{m,t}$

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<sup>14</sup>We focus on elections starting in 2004, when Bosnia and Herzegovina assumed full autonomy in the management and administration of the electoral process. As mentioned in Section 2, previous elections occurred under the OHR rule and were characterized by irregularities, vote buying, and voter intimidation (Pugh and Cobble, 2001).

denotes municipality characteristics at time  $t$ .  $B_{m,0}$  refers to pre-war attributes (year 1990-91 or time-invariant). It includes ethnic shares, ethnic polarization (Montalvo and Reynal-Querol, 2005), Weidmann (2011)’s index of strategic importance,<sup>15</sup> pre-war population counts, the log of per-capita income, the share of cultivated land, geographic characteristics (surface area, rough terrain, distance to Croatia and Serbia), and the student/teacher ratio.

Next, to shed light on the potential mechanisms that shape the relationship between conflict exposure and voting, we include additional municipality characteristics measuring collateral effects of war intensity that could influence turnout levels. We discuss the rationale behind each potential channel, together with the estimation results, in Section 6.2. We augment Equation (4) with a series of additional variables. We add dichotomous variables for the administrative Entity (FBiH or RS), whether the municipality was partitioned by the Internal Boundary Line established in the Dayton agreement of 1995, and the interaction of the two. Depending on data availability, we additionally include (i) unemployment shares and average net wages (2006, 08, 10, 12), the student-teacher ratio (2014), population differences (2008, 10, 12), and net immigration rates. We also include the fraction of houses damaged during the war as a measure of physical capital destruction and the share of damaged houses that were reconstructed by 2005 as part of the UN reconstruction housing program.<sup>16</sup> We further include the change in ethnic polarization (from 1990 to 2013) to account for ethnic homogenization.

If voters were able to anticipate the dynamics of the conflict and the future political landscape, and adjusted their behavior accordingly, 1990 elections would be an inappropriate baseline for our estimations. This concern is, however, mitigated by the fact that the conflict and its brutality were far from foreseeable prior to their outbreak (Bieber, 2014). Not only was the brutal escalation of the war far from predictable, but its resolution and the subsequent administrative and institutional establishment were heavily influenced by external mediators such as the UN and the European Community. The institutional structure in Bosnia today was established within the Dayton Agreements in 1995 before any election took place. It is so unique (for example, due to the presence of the OHR and the asymmetric federal structure) that is hard to argue that power-sharing rules and municipality borders could have been easily anticipated. Swee (2015) states that the precise location of municipality borders were discussed and overthrown until the very last second of the signing of the Dayton agreement and uses boundaries as exogenous variation of ethnic composition at the municipality level.

Because the conflict spread geographically, we repeat the estimations allowing the standard

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<sup>15</sup>Weidmann (2011) argues that the strategic importance of a municipality is determined not only by its own ethnic composition but also by the ethnic composition of the neighboring municipalities. If a municipality is ethnically polarized and neighbors ethnically homogeneous municipalities, the strategic importance is high for the dominant group in the neighboring municipality.

<sup>16</sup>Another dimension of violence we are not able to measure at the municipality level is sexual violence. Sexual violence during the conflict was widespread. Estimates of the number of women raped range between 10,000 to 50,000. Experience of sexual violence can alter an individual’s decision to participate politically (see for example Koos (2018)). Prevalence of sexual violence is likely positively correlated with war intensity measured by civilian and/or military casualties.

errors to be spatially correlated, calculating the distance of municipality centroids to each other. Section 6.4 presents these additional robustness checks.

## 5.1 Selective targeting

If the aggressors selectively perpetrated higher violence in places where voter turnout was lower, the coefficient of civilian casualties would reflect selective targeting and reverse causation. However, the conflict literature suggests a different set of elements and goals that played a prime role in the outbreak and the spread of the Bosnian War, based on historical reconstructions and trial depositions. The major objectives of the Bosnian War were along the lines of secession, territorial control, and ethnic homogenization (Costalli and Moro, 2012; Novta, 2016; Weidmann, 2011).<sup>17</sup>

For the validity of a difference-in-difference approach, pre-“treatment” parallel trends constitute a crucial assumption. In our setting, we observe the same municipalities before and after the war. The assumption means that turnout trends in the elections that preceded the war outbreak should not have evolved in a way that systematically correlates with the subsequent conflict intensity. A common approach is to run placebo regressions of the diff-in-diff bringing the occurrence of the event forward in time, and interacting the treatment with a vector of pre-shock time dummy variables. Because 1990 elections were the only free and multi-party elections that preceded the conflict, we are not able to show a full parallel-trends test. To address this issue, we thus follow a strategy similar to Blattman (2009) and check whether municipalities were targeted in a non-random fashion. We check whether municipalities that were less politically active in 1990 displayed higher shares of war casualties. Table 4 shows the opposite scenario: civilian casualties and pre-war turnout rates correlate positively. Municipalities with higher turnout rates in 1990 experienced higher levels of civilian casualties during the war. In column (2) we add pre-war characteristics, and in column (3) we add the share of military casualties, and the coefficient on civilian casualties does not change substantially. Two key aspects to notice are that voter turnout in highly affected municipalities has *decreased* after the conflict resolution, and the results of our difference-in-differences estimations show a *negative*, rather than a positive, impact of casualties on voting. Finding a positive correlation between pre-war turnout and casualties means that we should exert some caution when interpreting our main results. We are potentially overestimating the effect if voting in 1990 elections was higher in municipality most hit by violence (or underestimating the effect in case of a downward pre-war voting trend). The difference-in-differences precisely address the issue of unobserved heterogeneity. Additionally, the coefficient in column (3) is smaller than the effects of war exposure on voting that we find on average, in a regression where the outcome is expressed in levels. For a comparison of

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<sup>17</sup>During the 16th Assembly of the Serbian People in Bosnia and Herzegovina, the Bosnian Serbs’ leader Radovan Karadzic announced six strategic goals: separation from the other two ethnic communities, control of a corridor between the north-eastern region of Semberija and the north-western Krajina (self-proclaimed as a Serbian Republic from Croatian territories), establishment of a Serbian corridor along the Drina river, establishment of a border along the Una and Neretva rivers, the partition of Sarajevo, and access to the sea. Source: the minutes of the 16th Assembly of Serbian People in Bosnia and Herzegovina, 12 May 1992, Banja Luka. This statement was reported by the historian Robert Donia during his deposition as a witness for the ICTY (Sense Tribunal, The Hague, 01.06.2010).

the effect, we also run Equation (4) on turnout expressed in levels rather than as a difference (see Table 11 in the Appendix, panel B). The results suggest that there is additional cross-sectional variation in the negative impact on voting that cannot be explained by mean-reversion. We also run the regression without controlling for turnout levels in 1990 (Panel A of Table 11). Comparing those regression results to the ones in Panel B, where we include turnout levels in 1990, we can see that this inclusion alters the coefficient estimates for the post-war general elections. We, therefore, use the difference in turnout rates compared to 1990 as our main outcome variable, to account for the initial differences in pre-war voting.

Table 4: Conflict Intensity: Non-random Targeting

Dependent Variable (in 1990)	(1)	(2)	(3)
	Turnout 1990		
Civilian Casualties	1.052*** (0.306) (0.459)	1.830*** (0.461) [0.549]	1.759*** (0.429) [0.455]
Military Casualties			0.316 (0.895) [0.527]
$R^2$	0.0410	0.365	0.365
Observations	127	127	127
Mean Dep. Variable	79.65	79.65	79.65
Std Dev. Dep. Variable	6.424	6.424	6.424
Pre-war Characteristics	No	Yes	Yes

Source: Authors' estimation from the "Bosnian Book of Dead", 1991 BiH Census, the Federal Office of Statistics of Bosnia and Herzegovina, and additional geographic data at the municipality level (see Section 4). Pre-war characteristics include: log (per capita income), ethnic polarization, ethnic shares, population, strategic importance (Weidmann, 2011), student-teacher ratio, distance to Croatia and Serbia, and cultivated land (%) in 1991. Significant predictors of turnout rates in 1990: distance to Croatia (-), share of land used for cultivation (-). Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using Colella, Lalive, Sakalli and Thoenig's (2019) Stata code following Conley (1999).

As a final robustness check, we follow an instrumental variable approach. We instrument the number of civilian casualties with the ruggedness of the terrain of the municipality. Conflict theorists highlight the role that geographic characteristics play in wars. Controlling a mountain facilitates attacking the opposing group in the valley below (Novta, 2016), as the combating group can shell the valley. In Section 6.4 we discuss the results and the validity of the instrument.

## 6 Results

### 6.1 Civil conflict violence and voter turnout

The average turnout in Bosnia and Herzegovina in the two decades of post-conflict general and local elections ranges between 48% and 61% (see Table 2). Voting varies considerably across municipalities, as graphically shown in Figure 3 for the latest elections of 2014. Before the conflict, average turnout was higher (80%) and had a lower dispersion across the administrative units (see Figure 3 and Table 2). This Section presents the estimates of the impact of civil conflict on the decrease in voter turnout. War-intensity is measured by the ratio of casualties over pre-war population by municipality of origin. The outcome variable is given by the difference between turnout in each post-war election and turnout in 1990. Voter turnout is the share of total votes over total registered voters in each municipality.

Before presenting the results of our differencing strategy based on Equation (4) for each local and general election, in Table 5 we present the different results that we obtain by running a regression of the difference between voter turnout in post minus pre-conflict elections on war intensity, distinguishing war casualties based on their military status. We use the pooled sample of elections as an illustrative example. Column (1) shows the estimates for a measure of conflict given by the total share of casualties that occurred during the war, irrespective of their nature. The coefficient is small and not statistically significant at conventional levels. In column (2), we separate casualties by their status and obtain different results: the coefficient for civilian casualties is negative and statistically significant, while military casualties display a positive correlation. We then control for pre-conflict characteristics (column 3) that represent elements of strategic targeting during the conflict (such as ethnic shares, distance from Serbia and Croatia, demographic, geographical and socioeconomic characteristics), and we see that the coefficient on military casualties loses its statistical significance. This result suggests that the positive correlation between military victims and turnout reflects an omitted variable bias. As discussed in Section 4, military and civilian casualties are highly positively correlated (0.64). The reader may be concerned that we are not able to simultaneously estimate the effect of civilian and military casualties on our outcome variables. In column (4), we exclude military casualties from the regression and still observe a negative and statistically significant effect on civilian casualties. The coefficient size is virtually unchanged. The omission of military casualties from any of our regressions does not alter the results. On average, increasing civilian casualties by 1 percentage point leads to a decrease in turnout by approximately 3 percentage points. This finding supports the hypothesis that violence specifically addressed towards *civilians* can provoke profound ruptures in the social capital of a community (Kalyvas and Sambanis, 2005). The result shows how the measure chosen as a proxy for war intensity can fundamentally matter for the interpretation of the relationship between war intensity and voting.

We move to estimating the impact of conflict violence for all the local (2004, 2008, 2012) and central elections (2006, 2010, 2014) that took place after the war separately, following Equation 4

and including only measures of civilian casualties and pre-war municipality characteristics. Figure 4 illustrates the point estimates with their 95% confidence intervals for the coefficient of civilian casualties in each election. The figure reports the results based on the estimation of Equation 4, (i) with war casualty measures only and (ii) with war casualty measures and pre-war municipality characteristics (the third specification, indicated by diamond-shaped symbols, refers to an estimation that includes pre-war and post-war municipality characteristics, which we present in Section 6.2).

Table 5: Voter Turnout and War Casualties by Civilian or Military Status

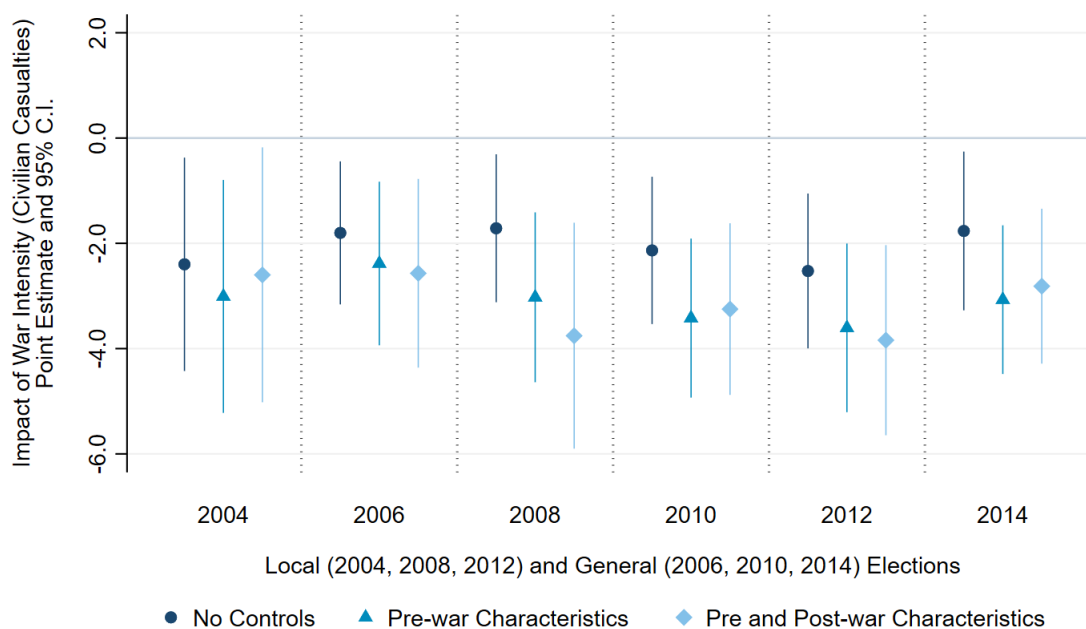
	(1)	(2)	(3)	(4)
Dependent Variable:				
Voter $Turnout_t - Turnout_{1990}$				
Casualties	0.315 (0.402) [0.333]			
Civilian Casualties		-2.056*** (0.616) [0.401]	-3.085*** (0.612) [0.395]	-2.990*** (0.541) [0.357]
Military Casualties		4.641*** (1.391) [0.894]	0.424 (1.363) [0.752]	
Pre-War Characteristics	No	No	Yes	Yes
Post-War Characteristics	No	No	No	No
$R^2$	0.141	0.193	0.410	0.410
Observations	762	762	762	762
Mean Dep. var.	-22.64	-22.64	-22.64	-22.64
Std Dev. Dep. Var.	11.51	11.51	11.51	11.51

Source: Authors' estimation from the "Bosnian Book of Dead" (BBD 2008), 1991 BiH Census, official electoral statistics from FOS-BiH, and geographic data at the municipality level (see Section 4). Time  $t = 2004, '06, '08, '10, '12, '14$ . Casualties are in % of pre-war population by municipality. All regressions include year FE. Pre-war characteristics: log (per capita income), ethnic polarization, ethnic shares, population, strategic importance (Weidmann, 2011), student-teacher ratio, and share of cultivated land in 1991, area, surface ruggedness, and distance to Croatia and Serbia. Standard errors in parentheses, clustered at the municipality level. Asterisks denote statistical significance at the 1(\*\*\*), 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using Colella et al.'s (2019) Stata code following Conley (1999).



Every regression includes civilian and military casualties separately. Pre-war characteristics (1991) include the log of per-capita income, ethnic polarization (Montalvo and Reynal-Querol, 2005), Ethnic shares, population, a synthetic measure of geographic strategic importance (Weidmann, 2011), primary school students per teacher, distance from Croatia and Serbia, the share of land used for cultivation, surface area, and terrain ruggedness (standard deviation).

Figure 4: Impact of Violence Against Civilians on Voter Turnout in Local and General Elections



Source: Authors' estimation from the "Bosnian Book of Dead", BiH Census (1991), FOS-BiH, and geographic data at the municipality level (see Section 4). Sample size: 127 municipalities. The graph reports point estimates and 95% confidence intervals for the coefficients of civilian casualties (% of pre-war population) by municipality of origin from regressions of model 4, (i) without controls, (ii) with pre-war characteristics, and (iii) with pre and post-war characteristics. Coefficients represent the impact of war exposure on the difference between voter turnout in local (2004, 2008, 2012) and general (2006, 2010, 2014) elections and pre-war turnout (1990). Every regression includes military casualties (not displayed). Pre-war characteristics (1991): log of per-capita income, Ethnic polarization, pre-war ethnic shares, population, strategic importance (Weidmann, 2011), student/teacher ratio, distance from Croatia and Serbia, and share of land used for cultivation, surface area, terrain ruggedness. Post-war characteristics include: damaged houses (% of population) in 1995, repaired houses by 2005 (as a fraction of total damaged houses), net immigration shares in 1995, Entity (Rs or FBiH), a dichotomous indicator for municipalities partitioned by the Inter-Entity Boundary Line in 1996, and an interaction of the two.

The effect is large and significant for all elections and for both specifications, and it holds its statistical significance and magnitude up to twenty years after the conflict resolution. Considering the results obtained by estimating Equation (4) with pre-war characteristics, a one percent increase in the share of civilian casualties leads to an average decrease in turnout that ranges between 1.7 and 3.8 percentage points. In other words, a one standard deviation increase in the share of civilian casualties (1.24% of the population) leads to a decrease in voter turnout of 2.5 (in 2004, 2006), 2.8 (2014), 3.2 (2010), 3.8 (2012) and 4.1 (2008) percentage points. The coefficients translate roughly into one-third of a standard deviation change in turnout since 1990. Considering that civilian casualties reached up to 7% of the population in some municipalities, the effect is large in magnitude. The impact is stable over time and it is worth noting that the effect is similar between municipal and central elections. This result suggests that the “supply side” of voting, which is different for local and general elections, does not determine our results.

For completeness, Table 11 in the Appendix reports the results obtained by specifying the outcome in levels rather than in differences. We present results pooling all election years and splitting the sample by election type. We find significant and similar reductions in turnout levels in all specifications.<sup>18</sup> In Table 12 (Appendix), we also show the results that we obtain by including voter turnout in 1997 to the pooled sample of elections. Elections in 1997 are excluded from the main analysis due to the extensive irregularities reported in the voting process. However, because of the short time gap that separates the year 1997 from the conflict and a plausibly high salience of war exposure, they play a relevant role in studying the impact of violence on voting. We assess that their inclusion in the sample does not alter our main results. In all the additional specifications presented in Table 12 in the Appendix, we reach the same conclusion of a statistically significant negative relationship between violence and turnout rates.

## 6.2 Demographic selection, ethnic homogeneity, reconstruction, and economic activity as potential mediating mechanisms

The literature shows that war violence and civil conflict generate disrupting effects along an extensive range of dimensions in war-torn economies and societies. All such consequences potentially mediate the effect of violence against civilians on political participation. This Section summarizes which dimensions are likely to be affected by war experience and how we rule out alternative explanations in our empirical analysis.

War and civil conflict violence induce changes in the demographic and social structure of the affected regions, through migration, forced displacement, and fatalities. The Bosnian War caused almost 100,000 deaths and the displacement of almost 2 million refugees. Refugees and returned migrants potentially differ from non-displaced individuals in terms of their socio-economic char-

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<sup>18</sup>It is important to note that pooling the election years masks heterogeneity in statistical significance by election year. While the coefficients from regressions for every single election separately are similar in magnitude, the coefficients for the two earliest elections (2004, 2006) are not statistically significantly different from zero.

acteristics and preferences. [Kondylis \(2010\)](#) finds evidence of higher unemployment rates among conflict-related displaced male migrants and higher drop out rates from the labor force among displaced women in BiH. We expect that communities with high shares of migrant members may differ from non-migrant communities in their voting behavior.

The ethnic composition of municipalities changed drastically between the census in 1990 and the census in 2013. Ethnic polarization decreased over time. The Bosnian conflict ended with the division of the territory into two main Entities. The Dayton Agreement redesigned the boundaries of some municipalities pertaining to the most contested areas along the internal front line. [Swee \(2015\)](#), relying on the partition of BiH municipalities, finds that the most ethnically homogeneous areas provide more schooling, measured by the number of primary schools and the number of teachers per pupil. Changes in human capital are another potentially crucial channel through which war violence can affect voting. The literature documents large and persistent effects on education as a consequence of conflict ([Akresh and de Walque, 2008](#); [Leon, 2012](#)). The ethnic composition of municipalities and public spending on education are likely to differ across more or less war-affected municipalities and correlate with political participation.

Local economic conditions may also influence voter turnout across municipalities. Because civil conflict can disrupt employment opportunities, we expand the analysis by including labor market characteristics, measured by unemployment rates and average net wages. An opposite consequence of conflict-related physical capital damage stems from post-war reconstruction programs, which bring about demand for labor. Reconstruction activity creates employment opportunities and large capital inflows. Reconstruction activity also exposes the local population to the presence of international actors, NGOs, and volunteers, potentially influencing social capital and political preferences in the recipient areas.

The Dayton agreement caused many electoral and municipal changes. The Inter-Entity Boundary line (IEBL) split BiH into two main entities, the Federation of Bosnia and Herzegovina and the Republika Srpska.<sup>19</sup> The Federation of Bosnia and Herzegovina was further subdivided into ten cantons. Some municipalities were partitioned into two by the IEBL. The IEBL approximates the late military front-lines of the war. A potential confounding factor in our analysis is that the war induced electoral and municipal changes, which can explain differences in turnout rates. One example is that the partitioning of municipalities influences their ethnic composition. This can induce higher political participation. Similarly, living in an entity with three levels of government (FBiH) instead of two (RS) can lower incentives to participate politically. The measures we include in our analysis are whether the municipality belongs to the RS or not, whether it was partitioned by the IEBL, and an interaction of these two variables.

To take into account the mechanisms discussed above, we replicate the estimation of Equation (4) including a series of post-war controls at the municipality level and further measures of conflict intensity. We add the share of damaged houses (% of population) in 1995, the number of houses

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<sup>19</sup>In 2000, the Brcko District became a self-governing neutral administrative entity.

reconstructed by 2005 (as a fraction of total damaged houses), the number of war-related net emigrants in 1995 as a share of pre-war population, to which administrative entity the municipality belongs (RS or FBiH), and a dichotomous indicator for municipalities partitioned by the IEBL. For a subset of elections, depending on the availability of the information, we also include: unemployment rates (2006, 2008, 2010), average net wages (2006, 2008, 2010), the change in pupil-teacher ratio in primary school (2014), changes in population (2008, 2010, 2012), net internal immigration (2010, 2012), and changes in ethnic polarization (2012, 2014). Because post-war characteristics of the municipalities may be endogenous towards war exposure, we additionally estimate the results by adding one post-war variable at a time, and we find that the coefficient estimates for war exposure are not sensitive to their inclusion.<sup>20</sup> The inclusion of the post-war characteristics to rule out the outlined alternative mediating mechanisms deserves further discussion. We include a measure of emigration rates out of the country, internal emigration, and internal net immigration. This allows us to control for massive internal as well as external population movements in terms of relative population sizes for the different municipalities. However, due to a lack of data, we cannot control for the composition of the migrant population in terms of political preferences. Ruling out the explanation that political participation did not decrease purely due to migration rests on the assumption that war-induced migrants from different municipalities have similar political preferences.

The diamond-shaped symbols in Figure 4 correspond to the point estimates of the coefficient of violence against civilians that we obtain by estimating Equation 4 with the inclusion of all post-conflict characteristics that are available for all election years.<sup>21</sup> The coefficient is negative and statistically significant for all the elections in the sample.

Table 6 displays the results of the most comprehensive model, which includes all the pre-war and all the post-war municipality characteristics. The coefficients of civilian casualties are statistically significant at the 1% level in all elections (5% in 2004). A one standard deviation increase in civilian victims causes a reduction in voter turnout with respect to pre-war elections between 3 and 4.6 percentage points. The estimates do not differ significantly compared to our baseline specification. In columns (4) and (6), we show regression results of pooling all the elections and controlling for year fixed effects. In this specification, we only include post-war characteristics that are available across all years. On average, civilian casualties decrease turnout in local elections by -3.3 percentage points and in general elections by -2.8 percentage points. The difference between these coefficient estimates is not statistically significantly different.

One possible explanation of lower turnout rates could be the higher current salience of war in the municipalities that experienced more intense fighting. This means turnout is not necessarily

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<sup>20</sup>The results of the single-entry post-war variables regressions are available upon request.

<sup>21</sup>Common post-conflict characteristics include the share of damaged houses (% of population) in 1995, the number of houses reconstructed by 2005 (as a fraction of total damaged houses), the number of war-related net emigrants in 1995 as a share of pre-war population, to which administrative entity the municipality belongs (RS or FBiH), a dichotomous indicator for municipalities partitioned by the IEBL, and the interaction of the two latter indicators.

Table 6: Voter Turnout and War Exposure: Alternative Mechanisms

Dependent Variable: $Turnout_t - Turnout_{1990}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$t =$	2004	2008	2012	pooled	2006	2010	2014	pooled
Civilian Casualties	-2.598** (1.235)	-4.148*** (0.878)	-3.803*** (0.851)	-3.335*** (0.640)	-2.533*** (0.870)	-3.168*** (0.811)	-2.853*** (0.794)	-2.767*** (0.459)
Military Casualties	-2.989 (2.050)	2.261 (1.607)	2.859* (1.671)	0.809 (1.190)	0.721 (1.451)	1.600 (1.567)	2.214 (1.964)	1.189 (0.961)
Houses Damaged (% Pop.) in 1995	-0.00970 (0.141)	-0.174 (0.133)	-0.393*** (0.115)	-0.177** (0.085)	-0.0391 (0.131)	-0.187 (0.130)	-0.255* (0.132)	-0.125* (0.075)
Emigrants in 1995 (% 1991 Pop.)	-32.74 (33.93)	29.75 (25.81)	-11.97 (25.74)	-11.300 (18.149)	-13.98 (26.09)	-2.913 (24.39)	-47.79* (27.04)	-22.403 (14.350)
Houses Repaired / Damaged 1995	3.762 (2.691)	-2.879 (2.357)	-5.885** (2.635)	-0.778 (1.488)	-1.824 (1.861)	-3.674* (1.859)	-4.880*** (1.802)	-2.946*** (1.061)
Municipality Partition	-5.972** (2.584)	0.0743 (2.807)	1.197 (2.509)	-2.042 (1.634)	-0.956 (2.546)	-1.531 (2.407)	-0.719 (2.805)	-1.717 (1.461)
Entity: Republika Srpska	-1.876 (4.105)	12.22*** (3.154)	10.13*** (2.872)	4.880** (2.137)	6.764** (3.332)	1.646 (2.881)	5.609* (3.208)	3.253* (1.747)
Entity x Partition	5.092 (4.590)	-3.455 (4.023)	-6.437* (3.684)	-0.161 (2.462)	-3.964 (4.108)	-2.467 (3.632)	-4.076 (3.997)	-2.767 (2.208)
Unemployment Rate		0.212*** (0.066)	0.209*** (0.070)		0.200*** (0.068)	0.130* (0.069)		
Average Net Wage		-0.023** (0.009)	-0.027*** (0.008)		-0.001 (0.009)	-0.012 (0.008)		
$\Delta$ Population		-0.036 (0.068)	0.006 (0.065)			0.054 (0.057)		
Minority Representation		2.452 (2.149)						
$\Delta$ Ethnic Polarization			3.689 (2.761)				2.902 (3.164)	
Net Immigration			62.61*** (20.53)			-53.23* (27.49)		
$\Delta$ Students/Teacher							0.302 (0.375)	
Pre-war characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$R^2$	0.481	0.525	0.642	0.508	0.417	0.494	0.543	0.428
Observations	127	127	127	381	127	127	127	381
Mean Dep. Variable	-31.28	-19.09	-18.26	-22.87	-22.37	-21.21	-23.63	-22.40
Std Dev. Dep. Variable	12.72	10.45	11.38	12.97	9.25	9.51	10.61	9.83
Conley S.E. ( <i>civ. cas.</i> )	(1.710)	(0.851)	(1.027)	(0.880)	(1.018)	(0.877)	(1.042)	(0.557)

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOS-BiH), and geographic data (see Section 4). Casualties are in % of pre-war population by municipality. Pre-war characteristics always included: log (per capita income), ethnic polarization, ethnic shares, population, strategic importance (Weidmann, 2011), student-teacher ratio, distance to Croatia and Serbia, and cultivated land (%) in 1991. Inclusion of Post-War Characteristics depends on data availability. Column (4) and (6) show regression results pooling all election years and controlling for year fixed effects. In the pooled regressions, we only include post-war characteristics that are available for all years. Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. The last row reports standard errors for the coefficient on civilian casualties that allow for spatial correlation across municipalities, using Colella et al.'s (2019) Stata code following Conley (1999).

depressed because of the direct experience of violence but because of the current salience of the memory induced by, for example, war memorials (Ochsner and Roesel (2017)). One way to test this is to investigate whether the effect on turnout is significantly higher in areas where war salience is arguably larger, even with similar levels of war casualties. It is reasonable to assume that war salience could be higher in frontline municipalities. We analyze whether the effects are differential for frontline municipalities using two measures. First, we use a dummy that indicates whether the municipality borders the IEBL or not (taken from Costalli and Moro (2012)). Second, we use the distance (in km) of the municipalities centroid to an approximation of the frontline (the measure is taken from Beger (2012)). He uses period maps on frontlines and the location of land mines in 1995 to proxy the 1993 frontline). The results are reported in Table 13 in the Appendix. Neither interaction coefficient estimate is economically nor statistically significant. We report results pooling all elections (columns (1) and (4)) and splitting them by election type (local vs. general elections). In the results shown, we control for pre-war characteristics and year fixed effects. The effect of civilian casualties on turnout rates is similar across municipalities. Municipalities close to the IEBL seem to be reacting similarly to war exposure compared to the municipalities that are not bordering the IEBL.

Another possible explanation for the decreased turnout in war-affected areas is that is not necessarily the demand side of the political landscape that has changed due to war exposure, but the supply of political actors. One of the reasons for lower turnout can be the lack of moderate inter-group parties. The parties with the highest vote shares in BiH (SDS, HDZ, SDA) before and after the war, base their core policies on co-ethnic favoritism (Whitt, 2010). War-time divides are very salient in their agendas and victims of the war may be less inclined to vote if these are the only parties to choose from. We thus check whether political competition in the municipalities differs with the intensity of violence experienced. In Table 7, Column 1, we investigate whether the number of parties running in the local elections in the years 2004-2016 varies with the number of civilian casualties and see no significant differential patterns. We regress measures of violence on the number of parties running for the municipal council in the elections, divided by the total number of mandates available. The regression shows no significant relationship with war intensity, suggesting that political competition does not differ as a result of the civil war.

Lastly, one can argue that turnout rates may be lower in affected areas not because voting has decreased but because registration rates have increased. In Columns 2 and 3 of Table 7, we show the results that we obtain by regressing war intensity on the change in the number of people that registered to vote in the elections after the war from the number of registered in the elections in 1990. We do not see a statistically significant nor consistent relationship between war intensity and the number of registered voters in the post-war elections.

The empirical analysis presented in this section indicates that the coefficients for war exposure on turnout rates are robust to the inclusion of all the discussed alternative explanations. This implies that violence against civilians affects the decision to vote beyond the economic, socio-demographic, and ethnic consequences. As discussed in Section 3, this result supports the hypothesis that conflict

Table 7: War, Electoral Competition, Voter Registration

Dependent Variable:	(1) Total # of parties running Total # of mandates	(2) $\Delta$ Registered Voters (t-1990) General Elections	(3) Local Elections
Civilian Casualties	-0.0117 (0.00724) [0.00785]	-154.60 (651.99) [808.732]	168.50 (631.59) [797.957]
R2	0.317	0.456	0.428
Observations	507	381	381
Mean Dep. Var.	0.557	-9708.9	-7610.6
StDev Dep. Var.	0.183	15324.5	15523.2
Year F.E.	Yes	Yes	Yes
Pre-war characteristics	Yes	Yes	Yes
Post-war characteristics	No	Yes	Yes

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOS-BiH). For pre and post-war municipality characteristics, see footnote of Table 6). Casualties indicate total dead or missing individuals by municipality of origin (% of pre-war population). Column 1: The dependent variable is the number of parties running for office at the municipality level in the local elections (2004-2016), divided by the total number of mandates. Columns 2 and 3: the dependent variable is the difference between the total number of registered voters in local (2004, 2008, 2012) or general (2006, 2010, 2014) elections and in 1990. Estimates based on registered voters as a share of municipality's population (available for years 2008, '10, and '12) are available upon request (coefficients for casualties are statistically non-significant nor economically large). Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*), 5(\*\*) or 10(\*) percent level. In square brackets, standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s](#) (2019) Stata code following [Conley](#) (1999).



changes the behavior of the most victimized individuals through the expressive benefit from voting. We thus further explore this mechanism analyzing an individual-level survey on social capital and political preferences in the following Section 6.3.

### 6.3 Social preferences, trust, and voting

To analyze the hypothesis that fear and grievance generated by violence against civilians may have eroded social relations and the sense of community, we explore whether a negative relation between exposure to violence and measures of social capital such as trust and political participation holds at the individual level. We use individual survey data on social capital, and voting from the LITS-I (2006) survey.<sup>22</sup> Because the survey does not provide information on war violence at the individual level, we assign individuals to civilian casualties in their municipality. For a series of outcomes that relate to the warm-glow utility of voting, we estimate the following linear probability model:

$$SC_{i,m}^{06} = \beta_0 + \beta_1 CivilianCas_m + \beta_2 SC_i^{89} + \delta_i X'_i + \gamma_m M'_m + \epsilon_{i,m} \quad (5)$$

$SC_{i,m}^{06}$  denotes the social capital measure of individual  $i$  in municipality  $m$  in 2006,  $SC_{im}^{89}$  in 1989. Outcomes  $SC_{i,m}^{06}$  include: (i) generalized trust (“do you trust people in general?”), (ii) trust in institutions, and (iii) whether the individual voted in the most recent elections.<sup>23</sup> Trust is expressed as a categorical variable, ranging from 1 to 5, where 1 denotes “complete distrust” and 5 is “complete trust”. The LITS-I survey includes the question “Did you trust people before 1989?”. Despite the need for some caution due to the recalled nature of this information, it allows us to control for a pre-war measure of interpersonal trust. We do not have information on pre-war voting, but we include a variable indicating whether the respondent was a member of the Communist party before 1989, as a proxy for pre-conflict political engagement. The rationale here is that we assume party members to be particularly politically active and, therefore, more likely to vote. An obvious drawback is that regime opponents are probably also politically active but unlikely members of the communist party. Excluding this variable from our regressions leaves our coefficient estimates of interest virtually unchanged. To measure trust in institutions, we compute an index as the average between trust in the president, the ministers, the parliament, and political parties. The survey does not report information on trust in institutions prior to the conflict. We control for individual ( $i$ ) characteristics ( $X'_i$ ) and municipality ( $m$ ) characteristics ( $M'_m$ ). Standard errors are clustered at the municipality level. For comparability purposes, we standardize all the dependent variables (voting, generalized trust, trust in institutions), pre-war trust, and the number of casualties by municipality, such that they have mean 0 and a standard deviation of 1.

Table 8 shows the regression results from Equation (5) for voting (columns 1 and 2), generalized

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<sup>22</sup>See Section 4 for a description.

<sup>23</sup>The survey was conducted between August and October 2006. It is not clear to which elections the question “Have you voted in the last presidential/parliamentary election?” refers to. General elections took place on October 1st, 2006 and local elections took place in 2004.

trust (columns 3 and 4), and trust in institutions (columns 5 and 6). Our findings support the hypothesis that social capital and social participation are lower for individuals in municipalities with higher exposure to civil conflict. One standard deviation (SD) increase in civilian casualties is associated with a decrease in voting by 0.16 SD. The inclusion of individual and municipal characteristics does not alter the significance of the coefficient and increases its magnitude (column (2)). One SD increase in war intensity is associated with a decrease of generalized trust by around 0.2 SD (column (4)), and of trust in institutions by 0.2 SD (column (6)). In addition, we find that respondents in high-violence municipalities are less likely to trust other public institutions, independent from ethnic party platforms, such as the courts, the police, and the financial system.<sup>24</sup> Our findings reveal a tight link between civil war and individuals' societal perceptions and preferences.

If war violence specifically hit individuals with lower levels of social capital, our results would be upward biased. To rule out specific targeting of low social capital individuals, we follow two strategies. First, we check for heterogeneous effects by age. As [Cassar et al. \(2013\)](#) highlight, it is less likely that militias target young individuals on the basis of their social preferences. In addition, children and adolescents were not able to take an active part and self-select into the conflict. Table 15 in the Appendix shows that the coefficient of the interaction between young age (< 17 years) and war intensity is not significant. As a second approach, we follow the empirical strategy of [Blattman \(2009\)](#) and show that there is no statistically significant correlation between war exposure and pre-conflict trust, political participation, and socioeconomic characteristics of individuals. Table 16 in the Appendix reports the results, supporting the claim that the results are not biased by the targeting of individuals based on their levels of social capital.

Lastly, readers may be concerned that victims of the civil war are less likely to answer questions related to social preferences in the survey. For the considered measures of social capital (voting, trust in others, trust in institutions). Around 10% of survey respondents do not answer the questions. To address the concern of sample selection bias, we analyze whether individuals from high-violence regions are less likely to answer the survey questions regarding their social preferences. The coefficient estimates on civilian casualties on the likelihood to respond show no statistically significant relationship and are small in magnitude (see Table 17 in the Appendix).

Our findings based on individual-level data support the hypothesis that violence against civilians led to lower political participation through a disutility that agents derive from expressing allegiance to the political and social system.

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<sup>24</sup>Results are available upon request, as well as single-entry estimates for the components of the institutional trust index.

Table 8: Individual-level Results: Voting, Trust, Income (LITS-I, 2006)

	(1)	(2)	(3)	(4)	(5)	(6)
	Vote		Generalized Trust		Trust in Institutions	
Civilian Casualties	-0.157*** (0.0136) [0.0182]	-0.250*** (0.0665) [0.0677]	-0.139*** (0.0454) [0.0400]	-0.210** (0.0863) [0.102]	-0.154*** (0.0381) [0.0497]	-0.230** (0.0888) [0.106]
Income (pre-war)		-0.0197 (0.0481) [0.0249]		-0.0612 (0.0366) [0.0392]		-0.135** (0.0508) [0.0491]
Generalized Trust (pre-war)			0.00619 (0.136) [0.123]	0.0624 (0.105) [0.100]		
Observations	697	697	697	697	697	697
$R^2$	0.025	0.160	0.020	0.337	0.024	0.259
Indiv. Char.	N	Y	N	Y	N	Y
Munic. Char.	N	Y	N	Y	N	Y

Source: Authors' estimations from LITS-I (2006), using survey weights. Trust, voting, and casualties variables are standardized with mean 0 and standard deviation 1. Voting refers to whether individual has voted in the last presidential or parliamentary election. Generalized trust ranges between 1 and 5 (1 "complete distrust" 2 "some distrust" 3 "neither trust nor distrust" 4 "some trust" 5 "complete trust"). Trust in institutions is an average of: trust in the president, the parliament, the political parties and the ministers. Income is self-reported, ranking between 0 and 10. Individual characteristics include: age, gender, educational attainment, employment, ethnic group, marital status, number of children in the household, urban/rural, self-reported health, current party membership, communist party membership before 1990, whether respondent is of an ethnic minority, ever fought in military, internal displacement before 1996. Pre-war municipality characteristics (1991) include: log (per-capita income), ethnic polarization, ethnic shares, population, strategic importance (Weidmann, 2011), student/teacher ratio, distance to Croatia and Serbia, share of land used for cultivation. All regressions include military casualties and houses damaged (% of pre-war population). Standard errors in parentheses are clustered at the municipality level. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using Colella et al.'s (2019) Stata code following Conley (1999).

## 6.4 Robustness checks

To assess the robustness of our findings, we perform a series of checks and placebo tests. It is reasonable to assume that the dynamic and intensity of the war generated spatial spillovers. The probability of a municipality to have been attacked during the war is likely positively correlated with the strategic importance of the neighboring municipalities (Weidmann, 2011). The standard errors of our main results may be biased by omitting to allow for spatial correlation across observations. We add to all tables regression results that allow for correlation of standard errors between bordering municipalities, taking the distance of municipality centroids to each other. These standard errors

are reported in square brackets.<sup>25</sup> Allowing the standard errors to be spatially correlated does not alter our conclusions significantly. The standard errors are similar in all specifications. Only in one specification do we lose statistical significance at conventional levels when we allow for spatial correlation. The coefficient on civilian casualties is not significant in the most comprehensive specification for the year 2004, where we control for pre- and post-war characteristics (see Table 6, column (1)).

More than 90% of war casualties were men (BBD, 2008). If men vote disproportionately more than women, lower turnout rates may be a mechanic consequence of the change in gender composition resulting from the conflict. Unfortunately, we do not have information on gender differences in turnout before the war. We can, however, use the turnout results of the general election of 2006 to calculate the difference in turnout between men and women. We observe that male turnout exceeds female turnout by 2.7 percentage points (58.6% vs. 55.9%). The difference is not large enough to explain the decreased turnout rates by 2-3 percentage points we observe after the war. In a recent article using experimental variation increasing the salience of war, [Hadzic and Tavits \(2019\)](#) study how men and women in BiH react towards war salience in terms of political participation. They find that women express less interest in participating politically after being asked to reflect on their experience of violence committed by out-group members while men show more interest in being politically active. When we check for heterogeneous effects between men and women, we find a similar effect of conflict exposure on female turnout compared to male turnout (see Table 14 in the Appendix for heterogeneous effects by gender).<sup>26</sup> This result suggests that the effect is not gender-specific. Lastly, we find that there is no statistically significant impact of conflict on the ratio between male and female registered voters (Table 14, column (5)).

Another approach to rule out the sorting into victimization of low participation individuals is to check whether voters who were too young to have been directly targeted in the war respond differently to war exposure than older cohorts. We repeat our main analysis (Equation (4)) but split our samples into voters below and above 30 years in the general election of 2006. We can see in Table 9 that the effect of war exposure is very similar for the voters that were at most 19 years old at the end of the conflict compared to older voters.

As a final robustness check, we adopt an instrumental variable approach. The conflict literature makes use of geographic characteristics of villages or municipalities as sources of exogenous variation in violence intensity, such as distances to capital cities or neighboring regions, or terrain characteristics ([Cassar et al., 2013](#); [Voors et al., 2012](#)). The idea is that these villages only experience violence due to the geographic characteristics and would have been shielded if they were, for example, further away from the capital or less mountainous. The assumption is that these characteristics do not influence social capital measures directly, but only through the intensity of

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<sup>25</sup>We use [Colella et al.](#)'s (2019) Stata code for the adjustment of spatially correlated standard errors, whose approach follows [Conley \(1999\)](#).

<sup>26</sup>In column (4) of Table 14 we can observe that there is no significant relationship between the intensity of war casualties and the difference in turnout between genders in 2006.

Table 9: War and Turnout: Heterogeneous Effects by Age Group ( $\leq 30$  Years Old), 2006

	> 30 years old	< 30 years old	All
Civilian Casualties	-2.399*** (0.765) [0.667]	-2.824*** (0.995) [0.919]	-2.384*** (0.793) [0.703]
$R^2$	0.320	0.337	0.331
Observations	127	127	127
Mean Dep. Variable	-20.02	-30.46	-22.37
Std Dev. Dep. Variable	9.103	10.61	9.254

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOC-BiH), and additional pre-war control variables at the municipality level (see footnote of Table 6). Casualties indicate dead or missing individuals by municipality of origin, as a share of pre-war population. All regressions include military casualties as a separate regressor. The outcome variable is the difference in turnout from 1990 (for all voters) to 2006 (specific to the age group). column (1) shows results for voters above the age of 30 in 2006, column (2) for voters below 30 years, and column (3) for all voters. We do not display results for other elections because this information is only available for 2006. Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.](#)'s (2019) Stata code following [Conley \(1999\)](#).

violence. We use the standard deviation of terrain ruggedness to instrument conflict intensity. As discussed in Section 5.1, the literature shows that holding a mountaintop in a municipality can be strategically important in warfare because it facilitates hiding and attacks towards the valley. This logic also applies to the Bosnian context ([Beger, 2012](#); [Novta, 2016](#)). Holding a mountaintop is only beneficial if there is a valley to be attacked. We, therefore, use the variation in ruggedness to instrument civilian casualties. In the first and the second stage of our Instrumental Variable (IV) estimation, we control for military casualties and the usual pre-war characteristics. To increase precision, we pool all the elections and control for year fixed effects.

Table 10 displays the regression results of both the OLS and the 2SLS IV estimations (columns (1) and (2)). The first stage results depicted in column (3) show that the instrument works in the expected direction: the higher the variability in ruggedness in a municipality, the more civilians died during the civil war. The partial F-Value of the first stage regression (Table 10, column 3) shows that we have a strong instrument, with a partial F-Value of 42.57. The coefficient estimates of the OLS and 2SLS IV regressions are similar, but the IV estimates are slightly smaller in magnitude (-2.9 and -2.2 percentage points) and less precisely estimated. The exclusion restriction could be violated if ruggedness has a direct influence on turnout rates. For example, people may be less likely to go to the polling station if it is located on a mountain. The instrument is static, and our identification strategy relies on the assumption that it exerted an influence only while the conflict

Table 10: War Violence and Turnout: 2SLS IV (Ruggedness)

	(1) (OLS) Turnout	(2) (IV: Second Stage) Turnout	(3) (IV: First Stage) Civilian Casualties
Civilian Casualties	-2.917*** (0.357) [0.380]	-2.197* (1.331) [1.128]	
Ruggedness Std Dev (3x3 pixel, '000)	6.004 (11.468) [9.720]		8.335*** (1.181) [1.485]
Military Casualties	0.738 (0.778) [0.804]	0.227 (1.249) [1.371]	0.709*** (0.073) [0.110]
Observations	762	762	762
$R^2$	0.421	0.419	0.563
Kleibergen-Paap (KP) F statistic	.	.	42.566
KP F statistic (spatial correlation)	.	.	25.271
Mean Dep. Variable	-22.638	-22.638	0.832
Std Dev. Dep. Variable	11.505	11.505	1.233
Year FE	Yes	Yes	Yes
Pre-war Characteristics	Yes	Yes	Yes

Source: Authors' estimation from the 1991 BiH Census, official electoral statistics and municipality characteristics from the Federal Office of Statistics of Bosnia and Herzegovina. Additional pre-war control variables: per-capita income, student/teacher ratio, population, ethnic shares, surface area, cultivated land (%), strategic importance, ethnic polarization, and distance from Croatia and Serbia. We instrument civilian casualties with the standard deviation of terrain ruggedness. The ruggedness index is calculated as the average change in elevation within a 3x3 pixel grid in each municipality (source: [Jarvis et al. \(2008\)](#)). Standard errors in parentheses are adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s \(2019\)](#) Stata code following [Conley \(1999\)](#).

took place, similar to [Rohner et al. \(2013\)](#).<sup>27</sup> The exclusion restriction is not testable, but we find that variation in ruggedness does not significantly correlate with turnout rates in 1990, before the outbreak of the war.

## 7 Conclusions

Democratic participation after a civil conflict is crucial for the development of war-torn economies and societies. However, exposure to violent experiences can affect individual behavior and ultimately reshape preferences ([Voors et al., 2012](#)). Trauma may adversely affect trust ([Alesina and La Ferrara, 2002](#)) but war violence may also generate the opposite consequence of fostering social

<sup>27</sup>As in the OLS specification, there is no systematic relationship between the number of military casualties and voter turnout if we instrument military casualties with terrain ruggedness. Results are available upon request.

capital (Bauer et al., 2016; Bellows and Miguel, 2009; Blattman, 2009).

We provide original evidence of a long-lasting negative relationship between civil conflict and voter turnout in local and central elections, focusing on violence perpetrated against civilians. We find that voting decreases by approximately 4 percentage points per one standard deviation increase in violence towards civilians, up to two decades after the war resolution. The estimates are robust to the inclusion of potentially mediating war outcomes such as migration and demographic selection, ethnic composition, labor market conditions, physical capital damage, and reconstruction. In addition, we show that our results cannot be explained by sorting into victimization. The coefficient estimates are robust to the inclusion of pre-war characteristics and we observe the same effect on younger cohorts as on potentially directly targeted older cohorts. To shed light on the mechanisms through which civil war violence affects voting, and to conciliate our findings with the existing literature, we integrate the analysis studying individual-level data on social capital and civic engagement. We show that the negative impact on voting pairs with lower levels of trust and social capital. War victims exhibit social and political apathy and report mistrust in institutions, confirming a trend lamented in anecdotal evidence and in the press (Wiendel Rasmussen, 2017).

By separating civilian casualties from military victims, we further show that the different nature of victims as a measure of conflict can imply opposite conclusions. Our results of decreased voter turnout are consistent with existing evidence of lower trust toward out-group community members (Cassar et al., 2013). Because in the BiH context “generalized” trust encompasses “out-group” trust, our results also conciliate with opposite findings of increased in-group “parochial” trust and civic engagement, found in other recent micro-level studies (Bauer et al., 2016; Bellows and Miguel, 2009; Blattman, 2009).

The literature established a close link between the development of solid institutions with economic activity. Our results of a negative relation between violence towards civilians and voting, generalized trust, and trust in institutions may, therefore, be part of a broader picture explaining the difficult recovery and transition of war-torn economies and societies. The under-representation of the victimized population in politics and institutions can distort public goods provision, redistribution, and economic activity. Ignoring the legacies of conflict in terms of societal distrust and apathy toward institutions can lead to an underestimation of the true costs of civil conflict.

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## 8 Appendix

Table 11: Civil Conflict and Turnout: OLS (Outcome Variable in Levels)

	(1)	(2)
Dependent Variable: Turnout	General Elections	Local Elections
<i>Panel A: OLS (Pre-war Characteristics)</i>		
Civilian Casualties	-1.199*** (0.398) [0.380]	-1.454*** (0.527) [0.613]
$R^2$	0.355	0.501
Observations	381	381
Year F.E.	Yes	Yes
<i>Panel B: OLS, with Turnout 1990 (Pre-war Characteristics)</i>		
Civilian Casualties	-1.600*** (0.408) [0.391]	-1.461*** (0.546) [0.615]
Turnout in 1990	0.228*** (0.0599) [0.0481]	0.00385 (0.0680) [0.0629]
$R^2$	0.374	0.501
Observations	381	381
Year F.E.	Yes	Yes
<i>Panel C: OLS, with Turnout 1990 (Pre- and Post-war Characteristics)</i>		
Civilian Casualties	-1.500*** (0.435) [0.500]	-1.557** (0.606) [0.743]
Turnout in 1990	0.263*** (0.0592) [0.0467]	0.0152 (0.0636) [0.0564]
$R^2$	0.416	0.546
Observations	381	381
Year F.E.	Yes	Yes
Mean Dep. Variable	57.24	56.77
Std Dev Dep. Variable	8.43	11.34

Source: Authors' estimations from BBD (2008), 1991 BiH Census, official electoral statistics (FOC-BiH), and geographic data (see Section 4). The dependent variable is turnout in each post-war year in levels. Casualties are a % of pre-war population by municipality. Pre-war controls include: log income per capita in 1991, ethnic polarization 1991, pre-war ethnic shares, population, strategic importance 1991 (Weidmann, 2011), student-teacher ratio 1991, distance to Croatia and Serbia, share of land used for cultivation. Post-war characteristics: % of houses destroyed, % of houses repaired by 1995, emigrants in 1995, municipality partitioned after the war, entity (RS or FBiH), interaction of entity and partition. All regressions include year FE. Std errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*), 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using Colella et al.'s (2019) Stata code following Conley (1999).

Table 12: Adding 1997 elections to pooled regressions

	(1) All Elections	(2) Local Elections	(3) General Elections	(4) All Elections	(5) Local Elections	(6) General Elections	(7) All Elections	(8) Local Elections	(9) General Elections
	No controls			Pre-war Characteristics			Pre and Post-war Characteristics		
Civilian Casualties	-1.978*** (0.315) [0.369]	-2.044*** (0.454) [0.530]	-1.900*** (0.423) [0.488]	-2.870*** (0.324) [0.364]	-2.860*** (0.476) [0.566]	-2.895*** (0.424) [0.403]	-2.913*** (0.370) [0.482]	-3.037*** (0.563) [0.747]	-2.767*** (0.459) [0.557]
Observations	876	495	381	876	495	381	876	495	381
$R^2$	0.533	0.613	0.101	0.643	0.701	0.379	0.663	0.717	0.428
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pre-War Characteristics	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Post-War Characteristics	No	No	No	No	No	No	Yes	Yes	Yes

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOS-BiH), and geographic data (see Section 4). Casualties are in % of pre-war population by municipality. Pre-war characteristics included in all specifications: log (per capita income), ethnic polarization, ethnic shares, population, strategic importance [Weidmann \(2011\)](#), student-teacher ratio, distance to Croatia and Serbia, and cultivated land (%) in 1991. Post-war characteristics are: share of houses destroyed, share of houses repaired by 1995, emigrants in 1995, municipality partitioned after the war, entity (RS or FBiH), interaction of entity and partition dummy. All regressions include year fixed effects. Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s](#) (2019) Stata code following [Conley \(1999\)](#).

Table 13: Heterogeneity by IEBL and distance to frontline

Dependent variable: $Turnout_t - Turnout_{1990}$	(1) All Elections	(2) General Elections	(3) Local Elections	(4) All Elections	(5) General Elections	(6) Local Elections
Civilian Casualties	-3.017*** (0.443) [0.437]	-3.009*** (0.543) [0.416]	-3.025*** (0.697) [0.760]	-2.940*** (0.466) [0.481]	-2.483*** (0.588) [0.475]	-3.397*** (0.729) [0.804]
Internal border (IEBL) × Civ. Cas.	0.132 (0.469) [0.405]	0.275 (0.548) [0.544]	-0.011 (0.755) [0.598]			
Internal border (IEBL)	0.839 (0.880) [0.941]	0.347 (1.131) [1.264]	1.330 (1.337) [1.397]			
Distance to frontline × Civ. Cas.				-0.015 (0.020) [0.019]	-0.031 (0.027) [0.023]	0.001 (0.029) [0.029]
Distance to frontline				0.047* (0.027) [0.021]	0.048 (0.036) [0.026]	0.046 (0.039) [0.031]
Observations	762	381	381	762	381	381
$R^2$	0.410	0.380	0.467	0.412	0.384	0.467
Pre-War Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOS-BiH), and geographic data (see Section 4). Casualties are in % of pre-war population by municipality. Pre-war characteristics included in all specifications: log (per capita income), ethnic polarization, ethnic shares, population, strategic importance [Weidmann \(2011\)](#), student-teacher ratio, distance to Croatia and Serbia, and cultivated land (%) in 1991. Columns (1)-(3): civilian casualties interacted with whether the municipality borders the IEBL (taken from [Costalli and Moro \(2012\)](#)). Columns (4)-(6): civilian casualties interacted with the distance (in km) to the frontline. The distance measure is taken from [Beger \(2012\)](#), who uses period maps of frontlines and landmine locations to proxy the 1993 front line location. Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s \(2019\)](#) Stata code following [Conley \(1999\)](#).

Table 14: War and Turnout: Heterogeneous Effects by Sex, 2006

	(1)	(2)	(3)	(4)	(5)
	Turnout Male	Turnout Female	Turnout All	Turnout Male-Female	Registered Male/Female
Civilian Casualties	-2.774*** (0.853) [0.744]	-2.132*** (0.788) [0.700]	-2.384*** (0.793) [0.703]	-0.642 (0.398) [0.360]	-0.0121 (0.0102) [0.0061]
$R^2$	0.339	0.316	0.331	0.155	0.330
Observations	127	127	127	127	127
Mean Dep. Variable	-21.04	-23.77	-22.37	2.726	1.071
Std Dev. Dep. Variable	9.127	9.783	9.254	3.688	0.115

Source: Authors' estimation from BBD (2008), 1991 BiH Census, official electoral statistics (FOC-BiH), and additional sources of pre-war controls (see Section 4). Civilian Casualties indicate dead or missing individuals by municipality of origin, as a share of pre-war population. All regressions include military casualties as a separate regressor. In columns (1) to (3), the outcome variable is the difference in turnout between 2006 (group specific) and 1990 (for all voters). column (1) shows results for male voters, column (2) for female voters, and column (3) for all voters. The dependent variable in column (4) is the difference between male and female voter turnout. The dependent variable in column (5) is the ratio between male and female registered voters. We do not display the same estimates for other elections because this information is only available for 2006. Standard errors in parentheses and adjusted for heteroskedasticity. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.](#)'s (2019) Stata code following [Conley \(1999\)](#).

Table 15: Individual-level Results, Heterogeneity by Age (LITS-I, 2006)

	(1) Vote	(2) Trust People	(3) Trust Institutions
Civilian Casualties	-0.235*** (0.0678) [0.0660]	-0.237*** (0.0844) [0.0972]	-0.248*** (0.0862) [0.101]
Young Age (< 17 during war)	-0.432*** (0.139) [0.111]	0.0633 (0.0995) [0.0791]	-0.0127 (0.130) [0.129]
Young Age * Civilian Casualties	0.0934 (0.174) [0.174]	-0.00387 (0.0758) [0.0802]	0.0224 (0.108) [0.0913]
Observations	697	697	697
$R^2$	0.159	0.326	0.256
Indiv. Char	Y	Y	Y
Munic. Char.	Y	Y	Y

Source: Authors' estimations from LITS-I (2006). Outcome and treatment variables are standardized. Individual and pre-war municipality characteristics included (see footnote of Table 8 for details on outcome and controls). All estimates include survey weights. Standard errors in parentheses are clustered at the municipality level. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s](#) (2019) Stata code following [Conley \(1999\)](#).



Table 16: Non-selective Targeting of Individuals (LITS-I, 2006)

	Civilian Casualties			
Generalized Trust (pre-war)	-0.0813 (0.0785) [0.0838]		-0.0725 (0.0596) [0.0603]	
Member of Communist Party (pre-war)	-0.0775 (0.127) [0.130]		-0.0220 (0.0820) [0.0712]	
Income Rank (pre-war)		-0.0701 (0.0648) [0.0654]	-0.0606 (0.0531) [0.0504]	
Observations	697	697	697	697
$R^2$	0.019	0.001	0.050	0.170
Age and Gender	N	N	N	Y

Source: Authors' estimates from LITS-I (2006) and BBD (2008). Outcome variable civilian casualties 1992-1995 at the municipality level over pre-war population. All estimates include survey weights. Standard errors clustered at the municipality level in parentheses. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s](#) (2019) Stata code following [Conley \(1999\)](#).

In the following Table, we show that the probability of not answering survey questions on social capital (vote, trust, income) is not significantly related to war intensity experienced at the municipality level. We run the regression on the full sample of LITS-I (2006) respondents. Including survey weights and clustering at the primary sampling unit does not alter the results (available upon request).

Table 17: Individual Level (LITS 2006): Non-response and Conflict Intensity

Outcome: Missing Answer on	(1) Vote	(2) Trust Institutions	(3) Tust Post-war	(4) Trust Pre-war
Civilian Casualties	-0.00110 (0.000937) [0.000742]	-0.000790 (0.00381) [0.00409]	-0.00322 (0.00730) [0.00574]	-0.0180 (0.0153) [0.0144]
Observations	1000	1000	1000	1000
$R^2$	0.006	0.022	0.048	0.049
% of missing answers:	9.27	10.18	12.82	9.73

Source: Authors' estimated from LITS-I (2006) and BBD (2008). Additional controls: age group, gender, marital status, employment status, self-reported Health Status, number of children in the household, urban-rural-metropolitan residency, rural-urban migration (and viceversa, before 1996). Standard errors clustered at the municipality level in parentheses. Asterisks denote statistical significance at the 1(\*\*\*) , 5(\*\*) or 10(\*) percent level. Square brackets display standard errors that allow for spatial correlation across municipalities, using [Colella et al.'s](#) (2019) Stata code following [Conley](#) (1999).

Table 18: Elected parties in general elections 1990, 1996, 2006

1990	1996	2006
<i>Panel A: Parties continuously represented</i>		
Party of Democratic Action (SDA)	→ Party of Democratic Action (SDA)	→ Party of Democratic Action (SDA)
	Party for BiH (SBiH)	→ Party for BiH (SBiH)
Serb Democratic Party (SDS)	→ Serb Democratic Party (SDS)	→ Serb Democratic Party (SDS)
Croatian Democratic Union (HDZ)	→ Croatian Democratic Community BiH (HDZ-HNZ)	→ Croatian Democratic Community BiH (HDZ-HNZ)
		↘ Croats Together (HDZ 1990)
League of Communists-Social Democratic Party (SK-SDP)	→ Joint List (joint of SDP, UBSD, Croatian Peasant Party, MBO and the Republican Party)	→ Social Democratic Party of Bosnia and Herzegovina (SDP)
Democratic Socialist Alliance (DSS)		→ Democratic People's Alliance (DNS)
<i>Panel B: Parties entering/exiting over time</i>		
Alliance of Reformist Forces of Yugoslavia (SRSJ)	People's Alliance for Free Peace (NSSM)	Party of Independent Social Democrats (SNSD)
Alliance of Socialist Youth-Democratic Alliance (SSO-DS)		Party of Democratic Progress (PDP)
Muslim Bosniak Organization (MBO)		Patriotic Party (BPS Sefer Halilovic)
		People's Party Working for Prosperity (NS)
		Democratic People's Community (DNZ)
		Democratic People's Alliance (DNS)

Data sources: elections 1990 [Karic \(2011\)](#), 1996 [Kasapović \(1997\)](#), 2006 Central Election Commission BiH (izbori.ba). Panel A displays parties continuously represented in the House of Representatives or formed from previously running parties. Panel B shows parties entering and exiting House of Representatives over time.